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Human Health Evaluation of Exposures to Indoor Building Surfaces Army Materials Technology Laboratory

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Remedial Investigation/Feasibility Study

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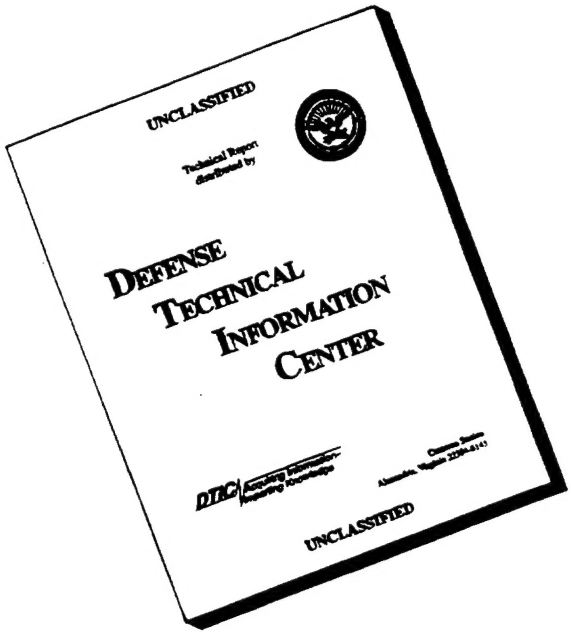

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The Army Materials Technology Laboratory (MTL) in Watertown, Massachusetts is scheduled for closure. As part of the closure process, a Remedial Investigation Feasibility Study (RF/FS) is being conducted by ROY F. WESTON, INC. (WESTON). This document, the Human Health Evaluation, uses data obtained during the RI and develops human health risks for use in the building FS. The objective of this report is to evaluate the potential for risks to future human populations that could use MTL buildings either in an occupational or residential setting. This evaluation is intended to provide the necessary information to decide what remedial actions may be necessary to clean-up the buildings in preparation for reuse. It was determined that the risk to future populations exceeds criteria established by the Massachusetts Department of Environmental Protection.

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LIST OF ACRONYMS

DU	Depleted Uranium
EPC	Exposure Point Concentration
HEAST	Health Effects Summary Tables
HI	Hazard Index
HIF	Human Intake Factor
HQ	Hazard Quotient
ICRP	International Commission on Radiological Protection
IEUBK	Integrated Exposure Uptake Biokinetic Model
IRIS	Integrated Risk Information System
LOAEL	Lowest-Observed-Adverse-Effect Level
MDEP	Massachusetts Department of Environmental Protection
MTL	Materials Technology Laboratory
NOAEL	No-Observed-Adverse-Effect Level
QA/QC	Quality Assurance/Quality Control
RfD	Reference Dose
RI/FS	Remedial Investigation/Feasibility Study
SF	Slope Factor
TEF	Toxicity Equivalence Factor
UBK	Uptake/Biokinetic Model

SECTION 1

INTRODUCTION AND BACKGROUND

1.1 SCOPE OF THIS REPORT

The Army Materials Technology Laboratory (MTL) in Watertown, Massachusetts is scheduled for closure and realignment. Prior to the sale or reuse of any MTL property environmental investigations are required. One of these, a Remedial Investigation/Feasibility Study (RI/FS) conducted by Roy F. Weston, Inc. (WESTON®), is nearing completion. A risk assessment, documenting exposures and risk to chemicals detected in soils, river water and river sediments, was completed as part of that effort (WESTON, 1993).

One of the exposure pathways not included in the development of exposure profiles for the possible future reuse of the MTL was that of exposures from contamination released during activities conducted within the buildings and subsequently adhering to interior building surfaces. Human exposure to chemicals adsorbed to particulates deposited on walls and floors can occur during human activities inside a building. Particulates deposited on interior walls can be resuspended into the air or can adhere to skin during contact with the wall surface. Resuspended dust can also deposit on food, food serving items or skin and be available for exposure. Thus, exposures can occur by inhalation, ingestion, or dermal absorption.

The objective of this risk assessment is to evaluate the potential for risks to future human populations that could use MTL buildings either in an occupational or residential setting. This evaluation is intended to provide the necessary information to decide what remedial actions may be necessary to clean up the buildings in preparation for reuse.

1.2 APPROACH AND METHODOLOGY

Risk assessments, in general, are four-step processes. First the sampling results are reviewed to determine what chemicals should be evaluated. Secondly, there is an analysis to decide if those chemicals are present at or could migrate to places where people are likely to come in contact with contamination. This is termed the exposure assessment and an attempt is made to actually quantify how often and how much a person could be exposed at a given location. In the third step, the information regarding how toxic a chemical could be is assembled using information both from animal studies and reports of human exposures. In the last step, estimates of risks are calculated using the information developed in both the exposure assessment and the toxicity assessment (Steps 2 and 3). Once those estimates are generated, a number of statements regarding how certain or uncertain they are must be made. This allows the reader to better understand where conservative and nonconservative assumptions are made and their effect on the estimated risk numbers.

When quantifying pathways involving contamination inside a building, however, there is no generally acceptable methodology for estimating how much of a chemical on a wall or floor is actually available for exposure. In other words, there is no direct way to measure the amount of material on building surfaces that could be released into the air as dust, given activities that are likely to occur inside a home or workplace. Likewise, there is no generally accepted method for determining how much of the material on walls or floors might be ingested by a worker or a resident in these buildings or how much might be absorbed through the exposed skin of these people. Estimates of these types of exposures, however, have been made by others and their assumptions are described and utilized in this assessment. Where appropriate, this technical information is referenced in the following sections of this report. With the exception noted above, procedures used in this risk assessment are consistent with guidance from the Massachusetts Department of Environmental Protection (MDEP) for evaluating risk from residential exposures (MDEP, 1992) and for conducting risk characterizations according to the Massachusetts Contingency Plan (MDEP, 1993).

1.3 ORGANIZATION

This report consists of six sections in addition to this introduction. These sections are as follows:

Section 2: Data Evaluation and Identification of Chemicals of Potential Concern
Section 3: Indoor Exposure Assessment
Section 4: Toxicity Assessment
Section 5: Risk Characterization
Section 6: Uncertainty Analysis
Section 7: References

The detailed exposure and risk calculations are contained in Appendix A.

SECTION 2

DATA EVALUATION AND SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN

2.1 AVAILABLE MONITORING DATA

During Phase 2 of the RI, WESTON conducted a comprehensive indoor surface wipe sampling program throughout the installation. Approximately 300 rooms in 16 buildings and the bunkers were sampled. Details of the sampling protocols (including quality assurance and quality control (QA/QC) requirements) and room locations are included in the Phase 2 RI (WESTON, 1993). The data were evaluated against procedures established for the RI and were judged suitable for the purpose of risk characterization. Results of the wipe sampling effort are summarized in Table 2-1.

Additional wipes were taken from several other buildings in the Watertown area. These were considered representative of background conditions. The off-site background wipe samples were collected from the following buildings in Watertown:

The Watertown Firehouse
R.H. Green Co., a lumber/hardware vendor
Hellenic Council Center
Cuniff Elementary School

Sixteen inorganic chemicals and seven organic compounds (four of which were pesticides) were detected at least once. The range of detected values in the background samples are summarized in Table 2-2.

2.2 SELECTION OF CONTAMINANTS OF POTENTIAL CONCERN

A total of 82 chemicals were detected in at least one wipe sample. Every inorganic chemical analyzed for was detected and usually at a fairly high frequency (30 to 50%). Thirty-two semivolatile compounds were detected at fairly low frequencies (<5%), except for several phthalates and polycyclic aromatic hydrocarbons. Nineteen pesticides were detected; DDT was found most frequently. Two Aroclors (polychlorinated biphenyl compound mixtures) also were detected at frequencies ranging from 10 to 14%. Three explosives compounds were detected: 2,4-dinitrotoluene, 2,4,6-trinitrotoluene (TNT) and RDX. The TNT was detected only in one bunker sample.

Thirty-three of these detected chemicals were subsequently eliminated from risk quantification. Chemicals are eliminated from risk quantification in an attempt to focus on those contaminants which would strongly influence the overall quantitative health assessment.

Chemicals detected infrequently or chemicals that are also essential human nutrients are typically minor contributors to risk estimates.

In this risk assessment, essential nutrients were excluded based on a comparison of an estimated daily dose to a nutritive level. This comparison is detailed in Table 2-3.

Further elimination of certain compounds was accomplished based on an infrequent detection criteria of less than 5%. Before the decision was made to eliminate infrequently detected chemicals two other criteria were evaluated: concentration range and spatial distribution. For all chemicals proposed for elimination based on infrequent detection, the maximum hits were not elevated with respect to their reported detection limits. In order to evaluate possible spatial patterns, the hits for each chemical were plotted on the figures from Appendix I in the RI report. There did not appear to be any specific clustering of any of these chemicals in a specific building or within a suite of rooms within a given building. In only one instance was an infrequently detected chemical detected more than once in a given room. In several instances an infrequently detected chemical was detected in two contiguous rooms. In only one instance was an infrequently detected chemical detected in a suite (4) of rooms. Benzyl alcohol was detected in the floor composite (but not the walls) of Rooms 201, 201, 206 and 207 on the second floor of Building 39. This was not considered significant enough to include this chemical in the quantitative risk evaluation.

There are several chemicals for which toxicity information is unavailable. These five chemicals cannot, therefore, be quantitatively evaluated for risk. Chemicals eliminated and the reason for their elimination are listed in Table 2-4. The remaining chemicals (Table 2-5) are the chemicals of potential concern.

SECTION 3

INDOOR EXPOSURE ASSESSMENT

Exposure is defined as the contact between an individual and a chemical of potential concern. The magnitude of this contact is determined by estimating how much of the chemical is available for absorption at one of the body's exchange boundaries (i.e., the intestinal tract, the lungs, or the skin) during a specified period of time. Determining the type and magnitude of this exposure to the chemicals of potential concern is the objective of an exposure assessment. This section identifies the types of possible future indoor exposures at the MTL site and estimates the potential magnitude, duration, and frequencies of exposure for those exposure pathways.

3.1 THE PHYSICAL SETTING

The physical characteristics of the MTL site are described in detail in the RI (WESTON, 1993). Information regarding the buildings, which constitute the physical setting for this risk assessment, is presented below.

The MTL site includes 30 buildings; approximately ten of these are major structures used for Army research, development, testing and manufacturing. Past and present uses of the buildings are described in the RI (WESTON, 1993); Table 3-1 summarizes the uses of those buildings involved in the chemical wipe sampling effort.

3.2 DEVELOPMENT OF EXPOSURE PROFILES

The exposure assessment for MTL (WESTON, 1993) identified three possible future uses at the MTL: commercial, residential, or open space and divided the site into four reuse zones, or areas of exposure (Figure 3-1). In addition, there may be possible zones of mixed use (i.e., residential and commercial uses combined). These zones are therefore the source components of this indoor risk assessment since they are the areas where buildings currently exist and contain chemically contaminated interior surfaces. Zone 1 contains only Building 243, which is a metal storage shed unsuitable for either residential or prolonged occupational habitation. The only building located in Zone 4 is the Commander's Residence, which does not appear to be contaminated. Therefore the sources (buildings) considered in this risk assessment are those sampled in Zones 2 and 3.

Three exposure scenarios are possible, based on the most likely future use of buildings at the MTL:

Scenario 1 assumes future residential use of the buildings in the proposed residential or residential/commercial zones (Zones 2 and 3) following considerable renovation, during which the majority of the contamination on interior surfaces is removed. Once renovation is

complete, further releases are unlikely, thus eliminating the potential for significant exposure to future residents. During this activity the most likely exposed population is the adult renovator.

Scenario 2 assumes future residential use of the buildings in the proposed residential or residential/commercial zones, without significant renovation or refurbishing. In this scenario both adult and child residents would be exposed to contaminated surfaces.

Scenario 3 assumes future commercial use (office or factory) of the buildings in the proposed residential/commercial zones, without significant renovation or refurbishing. In this scenario the most likely exposed individual would be an adult working in these areas.

The exposure pathways that are relevant for these scenarios include: inhalation of contaminated materials resuspended from the building surfaces, ingestion of contaminated material on or from the building surfaces and dermal contact with contaminated surfaces or secondarily from other surfaces where resuspended dust accumulates.

During its operational history, activities at MTL released contaminants from testing or manufacturing that were subsequently deposited onto and adhered to building walls, floors and associated structures. Depending on future activities within these buildings this contamination can be resuspended and become available for inhalation. Renovation activities such as wall removal, floor replacement, sanding, scraping, etc. are expected to generate more resuspended material (i.e., dust) than those activities that might occur during routine activities in a home or work setting. In a residence, sweeping, dusting, vacuuming and even simple ventilation can produce dust. This dust can be either inhaled by a receptor or deposited onto other building surfaces and thus become available for subsequent resuspension. The chemical wipe samples provide some measure of the identities and concentrations of contaminants that are removable by a physical process (i.e., wipes) and thus could be considered somewhat representative of the processes likely to result in resuspended material.

Incidental ingestion of surface contamination occurs by several means, all of which are difficult to measure. In some instances resuspended material can be deposited on food or serving items and ingested along with food. Additionally, some ingestion can occur by coming directly in contact with contaminated surfaces. In this case, contamination is transferred from the body surface to the mouth and swallowed. This touching and hand-to-mouth behavior is more likely to occur with small children and in adults while eating, drinking or smoking.

Dermal exposures require some sort of actual contact by bare skin to either the contaminated surfaces or by dust falling directly on bare skin. A portion of the contamination is subsequently absorbed across the skin. This type of exposure would be unlikely for a renovator who would be protected by clothing during his/her time spent in a given building.

The exposed skin of hands of residents and workers is the most likely body part to come in contact with contaminated surfaces.

3.3 QUANTIFICATION OF EXPOSURE

The output of the exposure assessment process is the calculation of an average daily intake of the chemicals of potential concern. The intake is a measure of exposure expressed in terms of the contaminant mass at the body exchange boundary per unit body weight per day (mg/kg-day). To calculate intakes, the following general equation is used:

$$DI = C \cdot (CR \cdot EFD/BW)(1/AT) \quad (1)$$

where:

- DI = Intake; the average amount of the chemical at the body's exchange boundary (mg/kg-day).
- C = Chemical concentration; the amount of a chemical that comes in contact with the body during the exposure period (mg chemical/unit environmental medium).
- CR = Contact Rate; the amount of contaminated medium contacted per unit time or event.
- EFD = Exposure Frequency and Duration; how long and how often exposure occurs. The EFD term is usually calculated from two terms, the exposure frequency, EF (usually expressed in days/year) and the exposure duration, ED (usually expressed in years).
- BW = Body Weight; the average body weight over the exposure period (kg).
- AT = Averaging Time; the period over which exposure is averaged (days).

All of the elements of the equation, with the exception of "C," can be combined into a pathway and population-specific term called the Human Intake Factor (HIF). Thus, the equation can be more simply expressed as:

$$DI = C \cdot HIF \quad (2)$$

In general, the values of C and/or HIF may depend on time, so it is necessary to calculate DI values for subchronic (14 days to 7 years), chronic (7 years or more), or lifetime (70 years) exposure periods. Thus, equations for estimating subchronic, chronic and lifetime average daily intake can be written as:

$$DI_s = C_s \cdot HIF_s \quad \text{(subchronic)} \quad (3)$$

$$DI_c = C_c \cdot HIF_c \quad \text{(chronic)} \quad (4)$$

$$DI_L = C_L \cdot HIF_L \quad \text{(lifetime)} \quad (5)$$

Many of the values selected are those that represent an average or mid-range of the possible values that could be used. Therefore, use of these values for the variables in this equation provide a realistic yet adequately conservative estimate of risk (MDEP, 1992; MDEQE, 1989). Since a degree of conservatism is employed in these risk calculations, the estimates are not likely to underestimate true risk, but rather to provide some measure of protectiveness.

Quantification of exposure thus is undertaken in two stages: estimation of exposure point concentrations (i.e., EPCs or the "C" term in the equation) and calculation of HIFs.

3.3.1 EXPOSURE POINT CONCENTRATIONS

Interior Surfaces

It is not known how each room sampled in each of the buildings could eventually be used. Human activity patterns in a residential suite of contiguous rooms would be impossible to predict without having detailed reuse plans, which are not available.

In an occupational setting, one or two rooms could be used almost exclusively by a given worker. However, since 855 wipe samples were analyzed from more than 300 rooms in 16 buildings at MTL, it is impractical and not necessary to evaluate potential exposures in each room of every building.

Representative (i.e., of contamination and likely unacceptable risk) exposure points can be chosen to determine whether or not remediation is required in those areas. Whether or not rooms in other buildings require cleanup will be the focus of the Feasibility Study. This will be accomplished by the application of cleanup goals based on the exposure scenarios developed in this risk assessment. The selection of representative exposure points was accomplished by determining the most highly contaminated buildings through inspection of the chemical levels detected in the wipe samples. The chemical wipe data base was examined to determine the locations of the highest concentrations ($\mu g/cm^2$) of the most potent carcinogens and noncarcinogens.

All carcinogenic chemicals (both oral and/or inhalation) and noncarcinogens with low Reference Doses (i.e., approximately 1E-3 mg/kg-day or lower, both oral and inhalation) detected in wipe samples were included in this exercise. Preliminary target concentrations for each chemical were calculated based on a conservative target risk level. The sampling database was then queried to determine which wipe samples were above that concentration. Finally, multiple occurrences of these exceedances in individual buildings were tabulated.

Clustering of these exceedances was then used to select buildings as representative exposure points. The distributions of these chemicals tended to cluster in five buildings (numbers 37, 39, 311, 312, 313). Three of these buildings are in reuse Zone 2; the other two are in reuse Zone 3. Thus, these five locations were selected to represent exposure areas in this risk assessment.

Each of these buildings contains multiple rooms (20 to 86), which were sampled. It would be difficult to predict a given individual's pattern of time spent in any given room or collection of rooms. If this were known, an exposure point concentration could be calculated that would take into consideration a time or area weighting adjustment to account for specific human activities. It was, therefore, assumed that exposure would occur randomly across all rooms in a given building. Under this assumption, the arithmetic average of all samples available for a building was considered to be representative of the chemical contamination in that building.

Not every chemical of potential concern was detected in every wipe sample. Handling data reported below the detection limit can be accomplished one of three ways. If all nondetects are assigned the value of the detection limit, then the resulting exposure point concentration would be biased high, which is a very conservative approach. Using one-half the detection limit assumes that, on average, all values between zero and the detection limit are possible. This, too, is a relatively conservative approach. The third approach, which was used in this assessment, assumes that undetected chemicals are indeed absent. This is a reasonable assumption since the wipe sampling effort was biased toward areas of obvious or known contamination or release. A value of zero was, therefore, used as a surrogate in calculating EPCs if a chemical were not detected in a given wipe sample. Tables 3-2 through 3-6 document the resulting EPCs on building surfaces. These EPCs (mg/m^2) are used in quantifying intakes for the oral and dermal pathways.

Indoor Air

In order to evaluate inhalation exposures, an estimate of the amount of particulates, or dust, that could be released into air from contaminated building surfaces must be made. The relationship between surface concentration and the resulting airborne concentration is termed the resuspension factor. A resuspension factor of 1E-06 m^{-1} means that of one million units of surface contamination per m^2, one unit per m^3 is released, that is, becomes airborne. This factor has been measured experimentally under a variety of conditions.

Measured resuspension factors are highly variable. Values ranging from 10^{-11} to 10^{-2} have been reported in the literature. This high degree of variability is not unexpected since resuspension factors are dependent on many variables, including:

- The type of activity in progress during measurements, including how often and how vigorously the activity occurs.

- The nature of the contaminant (both chemical structure and physical state) and how it was deposited on the surface (i.e., as a liquid, or particle deposition from air, etc.).

- The physical characteristics of the surface material, (e.g., porosity).

- The size of the area in the measurement study (the room).

- The ventilation characteristics of the area involved.

- The methodology used for measuring the surface contamination.

- The methodology used for measuring the air concentrations.

Results of experimentally derived resuspension factors from a review of the literature (Sansone, 1987) that may be representative of future MTL activities are included in Table 3-7. Virtually all the factors that influence the resuspension of surface contamination within MTL buildings are unknown.

None of the experiments described in Sansone (1987) and presented in Table 3-7 were conducted under typical residential activities. Most, however were conducted under a variety of occupational situations. Inspection of these values indicates a range of nearly 1E-09 to 1E-02 m^{-1} . Any of these numbers is likely to represent some type of commercial or industrial activity that could be part of the reuse of the MTL buildings. This limited information does not lend itself to any rigorous statistical evaluation that could support selection of one value over another. The data in Sansone (1987) and Table 3-7 do suggest that more vigorous activity increases resuspension. Intuitively, it seems reasonable to assume that major renovation activities correspond to more vigorous activities as described in the experimental studies. Therefore a higher resuspension factor is appropriate for evaluating the renovation scenario.

In order to select a value so that the air pathway could be quantified, the studies listed on Table 3-7 were further categorized as to whether each represented a typical occupational or a more intense renovation scenario. Each category was ordered (high to low) in regard to the resuspension value reported. The values varied across four to six orders of magnitude; however, in each category the distribution centered about one order of magnitude (10^{-5} for routine occupational; 10^{-4} for vigorous occupational). This range also included the approximate median value (Table 3-8). Therefore, a resuspension factor of 1E-05 m^{-1} for future commercial reuse was selected, and a resuspension factor of 1E-04 m^{-1} was selected for the renovation scenario.

In the absence of any information regarding a resuspension rate under residential conditions, the value assumed for routine occupational activities (1E-05 m^{-1}) is adopted for residential scenarios. This value is probably very conservative. It must be remembered that the experimental studies measured resuspension during a specific activity and not over long periods of relative inactivity that might be expected under residential conditions. For example, during the night when an entire household is asleep a case could be made that virtually no resuspension (except that caused by air movement though the room) would be occurring. Thus, any measure of contamination in the air of the MTL buildings under any reuse scenario is subject to considerable uncertainty.

The concentration of contaminant in air is calculated as follows (DOE 1992):

$$C_{air} = \frac{C_{surface} \cdot F \cdot A}{V \cdot N} \qquad (6)$$

where:

C_{air} = Concentration of contaminant in air (mg/m^3)
$C_{surface}$ = Concentration of contaminant on the interior surface (mg/m^2)
F = Resuspension factor (hr^{-1}), fraction of dust resuspended
A = Area of contamination
V = Volume of the room
N = Ventilation rate (number of air changes per hour)

In a room about 12 by 15 by 8 feet, A is 20 m^2 , V is 41 m^3 and N is assumed to be 0.5 /hr (DOE, 1992). The ventilation rate assumed representative of either a commercial or residential reuse of the buildings is 0.5 air changes/hour. McKone (1987) used this as a typical value in an indoor assessment of organic compounds volatilizing from indoor uses for groundwater. Fingleton et al. (1992) assumed the same value in an assessment of an abandoned building at a Department of Energy site. Nazaroff et al. (1987) analyzed data from two studies of air exchange rates in over 500 homes during the heating season. The mean value was determined to be 0.68 air exchanges per hour. Becker and Lachajczyk (1984) assumed a typical air exchange rate for a home of 1 air change per hour in an assessment of radon in indoor air. In the absence of any information on commercial building uses, the same value of 0.5/hr was assumed for a commercial reuse scenario.

The concentration in air is, therefore, approximately the concentration on the wall multiplied by the resuspension factor. Since the amount of material available for resuspension is finite, the initial air concentration is expected to be depleted over time. However, the above equation assumes that the resuspension rate approximately equals the loss by ventilation. Thus, it was conservatively assumed that the air concentration is constant over time.

3.3.2 CALCULATION OF HUMAN INTAKE FACTORS

In the general equation for calculating human intake (Equation 1), the HIF incorporates the terms describing exposure relative to human activity. The value of the HIF term in calculating chemical intakes depends on the specific exposure scenario being evaluated. An HIF value is calculated individually for each exposed population, for each medium, for each exposure route and for each exposure duration. In general, an HIF value is comprised of three terms:

- A contact-rate term that describes the quantitative intake of a medium (e.g., mg of soil or L of water) by a person on a day when exposure occurs.
- A body-weight term (kg).
- A series of time correction factors that account for the fact that exposure does not occur every day during the time period of interest. These variables include exposure time (hours/day), exposure frequency (days/year), and exposure duration (years). These factors are divided by the period (in days) over which exposure is averaged.

Human intake factors are derived for the four assumed populations described earlier. Three of these populations (the adult and child resident and the commercial worker) are the same populations in the risk assessment prepared as part of the RI (WESTON, 1993). For these populations the assumptions regarding body weight, exposure frequency and duration, and averaging times remain the same. The fourth population, the renovation worker, is assumed to work on site for a one-year period (250 days of that year) and weigh 70 kg. Exposure factors unique to indoor pathways are described below.

Inhalation

The breathing rate for a worker is estimated to be 1.2 m^3/hour under normal work conditions, based on International Commission on Radiological Protection (ICRP) (1975) guidance. This rate is reasonable for an office worker; however, the renovation worker was evaluated using the EPA (1991) recommended value of 20 m^3/ per workday, since this work is likely to involve more physical activity and thus a higher breathing rate. The future resident adult was assumed to have a breathing rate of 15 m^3/day for indoor air (EPA 1991). Based on assumed activity patterns, the same rate was used for a resident child.

It is also assumed that 20% of resuspended dust is respirable.

Ingestion

Ingestion of material from surface contamination inside buildings can occur after material is transferred to hands, food or other items that ultimately enter the mouth. A number of exposure assessments have attempted to quantify this secondary ingestion rate, for both occupational and residential scenarios. These estimates range from 8E-04 to 1E-03 m^2 per day for workers and 2E-03 to 7E-02 m^2 for continuous (24-hour) residential exposures (as reported in Kennedy, 1992). Hawley (1985) assumed that a person could ingest all contamination from a 10 cm^2 (0.001 m^2) area of a contaminated surface every day under normal living conditions. This would result in a secondary ingestion rate of 1E-03 m^2/day. This is the value assumed in this risk assessment. For workers, it is unlikely that all surface contamination would be subsequently ingested since occupational activity patterns involve fewer mouthing-type activities, especially with food preparation and ingestion. Thus it was assumed that only 10% of the contamination from a 10 cm^2 area is subsequently ingested. This results in a secondary ingestion rate of 1E-04 m^2/day for workers. This value is within the range of assumed values used in other similar assessments (Kennedy, 1992).

Dermal

Dermal exposure to contaminated building surfaces is dependent on the skin area that comes in contact with the contaminated surfaces, the duration of the contact, the bond between the contaminant and the surface and the ability of the chemical to penetrate the skin. For the renovation worker, it is expected that little bare skin will be available for exposure. A renovator is most likely to be protected by wearing a work uniform of some sort, complete with gloves and boots. Therefore dermal exposures for this population are considered insignificant and are not quantified. For both commercial workers and residents, hand contact is likely to result in the only substantial dermal exposure.

The surface area of hands is approximately 5.7% of the total body surface area for children (MDEQE, 1989). For adults the percentage is approximately 5.2% (USEPA, 1991). These percentages were applied to total body surface areas previously assumed (WESTON, 1993). It was further assumed that this contact transferred 10% of the contamination from the building surface to the skin. This activity was estimated to occur once a day for each day of exposure within a building.

The calculation of HIF terms for all four populations is shown in Tables 3-9 through 3-11.

Average daily intakes are calculated using both the exposure point concentrations and the human intake factors from this section. Subchronic, chronic and lifetime intakes are documented in detail in the worksheets in Appendix A.

SECTION 4

TOXICITY ASSESSMENT

The adverse health effects of a chemical generally depend upon the inherent toxicity of the compound and the level (intake), route (oral, inhalation or dermal) and duration (subchronic, chronic or lifetime) of exposure. This section summarizes relevant information on the adverse health effects of chemicals of potential concern used in risk calculations.

Detailed toxicity summaries for each chemical of potential concern were provided in Appendix R of the RI (WESTON, 1993).

4.1 NONCARCINOGENIC EFFECTS

When data permit, the EPA derives numeric values that are useful in quantifying the toxicity and carcinogenicity of a compound. For noncancer health effects, these values are termed References Doses (RfDs). A Reference Dose is a conservative estimate of the average daily dose of a chemical (mg chemical per kg body weight per day, or mg/kg-day) that is without risk of any noncancer health effects in humans, including sensitive subpopulations. An RfD is specific for a given exposure route (oral, inhalation) and for a given exposure period -- subchronic for two weeks to seven years, chronic for seven years to a lifetime (EPA, 1989). An RfD is usually calculated from experimental data that identify the No-Observed-Adverse-Effect Level (NOAEL) or the Lowest-Observed-Adverse-Effect Level (LOAEL) in animals or humans. In order to provide a margin of safety, the RfD is taken to be the NOAEL or LOAEL divided by an appropriate uncertainty factor. Because the quality and quantity of toxicologic data available to support derivation of RfD values vary among chemicals, the EPA also provides an indication of the overall confidence associated with each RfD value. In general, the lower the confidence, the more conservative the EPA is in deriving the RfD.

Tables 4-1 and 4-2 provide brief summaries of the critical noncarcinogenic effects of the chemicals of potential concern at this site and list oral and inhalation RfDs for subchronic (RfD_s) and chronic (RfD_c) exposures and their confidence categories. For a number of the PAHs the dose-response data are too limited to support the derivation of an RfD. However, it is likely that these PAHs produce noncarcinogenic effects at doses similar to those of PAHs with a similar chemical structure. Therefore, RfD extrapolations were made for PAHs lacking RfD values, based on structural similarities with PAHs that have RfD values. These extrapolations include applying the RfD for acenaphthene to acenaphthylene, applying the RfD for pyrene to phenanthrene and applying the RfD for naphthalene to any other PAH.

4.2 CARCINOGENIC EFFECTS

For cancer, the numeric descriptors of carcinogenic potency are termed Slope Factors (SFs). These are route-specific, upper-bound estimates of the slope of the cancer dose-response

curve at low doses. (It is assumed the curve is linear in this region, and passes through the origin). The units of the SFs are $(mg/kg\text{-}day)^{-1}$. In addition, EPA assigns a cancer weight-of-evidence category to each chemical in order to reflect the overall confidence that the chemical is likely to cause cancer in humans. These categories and their meanings are summarized below.

Category	Meaning	Basis
A	Known human carcinogen	Sufficient evidence of increased cancer incidence in exposed humans.
B1	Probable human carcinogen	Limited evidence of carcinogenicity in humans.
B2	Probable human carcinogen	Sufficient evidence of increased cancer incidence in animals, but lack of data or insufficient data from humans.
C	Possible human carcinogen	Suggestive evidence of carcinogenicity in animals.
D	Cannot be evaluated	No evidence or inadequate evidence of cancer in animals or humans.
E	Evidence of noncarcinogenicity for humans	No evidence of carcinogenicity in adequate studies.

Table 4-3 provides a brief summary of the characteristic cancer effects of chemicals of potential concern at this site and lists available oral and inhalation SFs and cancer weight-of-evidence categories. For all carcinogenic PAHs, except benzo(a)pyrene, the dose-response data are too limited to support the derivation of a slope factor. There are two basic approaches by which the slope factor of benzo(a)pyrene can be applied to each carcinogenic PAH. By the first approach, all carcinogenic PAHs are assumed to be as potent as benzo(a)pyrene and therefore no adjustments are made to the slope factor. By the second approach, each carcinogenic PAH is assigned a toxicity equivalence factor (TEF) by which the slope factor of benzo(a)pyrene is multiplied. This former approach was utilized in this risk assessment.

Very little information is available regarding the specific chemical form(s) or valence(s) of the metals in environmental media at this site. Therefore, in order to be conservative, it is assumed that the metals are present in their most toxic forms. Thus, chromium is evaluated as if it were present in its hexavalent, and more toxic, form.

4.3 DERMAL TOXICITY VALUES

Dermal toxicity values are based on an absorbed dose (rather than the exposed or administered dose), since dermal intakes are calculated as absorbed doses. The EPA has not as yet established any dermal toxicity values. Therefore, approximate values were derived by extrapolation from oral toxicity values. This was done by multiplying the oral subchronic or chronic RfD values by the oral absorption fraction (AF_o), and dividing the oral slope factor by the AF_o. Absorption fractions are chemical-specific values obtained from the toxicological studies including, if available, the studies used in determining toxicity values.

This approach is based on the assumption that equal absorbed doses are equitoxic. Absorption fractions for inorganics developed by Owen (1990) are also used where specific data are not available. For all the organic chemicals of potential concern, AF_o was assumed to be 1.0 (i.e., 100% oral absorption). This reflects the fact that most organic compounds are fairly well absorbed from the gastrointestinal tract. Such an approach, however, may not always be conservative since a lower AF_o would result in a lower estimated dermal RfD or a higher slope factor. Risk, therefore, could be underestimated. No extrapolation from oral to dermal was performed for any PAHs, since these chemicals act at the point of contact (skin, stomach or lungs), so that inter-route extrapolation would be inappropriate. Table 4-4 summarizes dermal toxicity values used in this assessment.

In order to evaluate dermal exposure to dust, the fraction of the applied dose which is absorbed (ABS) is required for each chemical. These values have been determined for only two of the chemicals of potential concern (cadmium and PCB 1260) (EPA, 1992). For other chemicals, default values recommended by MDEP were used.

SECTION 5

RISK CHARACTERIZATION

Risk characterization integrates the results of the exposure and toxicity assessments into a quantitative description of potential cancer and noncancer risk estimates. The methods for risk characterization utilized in this baseline risk assessment are consistent with guidance provided in MDEP (1992) and EPA (1989).

5.1 EVALUATION OF CARCINOGENIC RISKS

The risk of cancer from exposure to a chemical is described in terms of the probability that an individual exposed for his or her entire lifetime will develop cancer by age 70. This value is calculated from the daily intake averaged over a lifetime (DI_L) and the chemical-specific slope factor (SF), as follows:

$$\text{Cancer Risk} = 1 - \exp(-DI_L \cdot SF) \quad (7)$$

In most cases (except where the product of DI_L and SF is greater than 0.01), cancer risk for a given carcinogen can be estimated more simply as:

$$\text{Cancer Risk} = DI_L \cdot SF_L \quad (8)$$

Slope factors have been derived by the EPA for a number of chemical carcinogens found at the MTL site, and each represents the incremental lifetime cancer risk per milligram of carcinogen per kilogram of body weight, assuming that the exposure occurs over a lifetime of 70 years. A slope factor is specific to the chemical and the route of exposure, (i.e., inhalation, dermal or ingestion). The total cancer risk is the aggregate of the individual cancer risks, summed across all chemicals of potential concern and all exposure pathways that contribute to exposure of an individual in a given population.

The daily intakes (averaged over a lifetime) resulting from exposure of populations assumed to be exposed to the carcinogens of potential concern at the MTL were estimated in Section 3; the slope factors for these carcinogens were provided in Tables 4-3 and 4-4. From these, estimated cancer risks were calculated using Equation 10. The chemical- and medium-specific calculations are presented in Appendix A. Owing to the inherent uncertainty in cancer risk calculations, all risk values are reported to only one significant figure.

Typically, MDEP requires remediation at a site when total excess cancer risk levels to any population exceeds 1E-05 (one in one hundred thousand) (MDEP, 1992). Table 5-1 summarizes the carcinogenic risks to future adult residents and workers.

Carcinogenic risks exceed the 1E-05 action level for each assumed reuse population at all five buildings, except for the worker populations in Buildings 311, 312 (commercial only) and 313. Risks to future residential populations range from 2E-04 to 6E-05. For commercial workers, risks range from 5E-05 to 5E-06. Even the relatively brief (1 year) exposure for the renovation worker poses unacceptable risk at two of the buildings (37, 39).

These risks are due primarily to beryllium, chromium, cadmium and PCBs.

5.2 EVALUATION OF NONCARCINOGENIC EFFECTS

The potential for chemical noncarcinogenic effects is evaluated by comparing an intake over a specific time period with the RfD derived for a similar exposure period. This comparison results in a hazard quotient, which provides a measure of the potential for adverse health effects other than cancer. For each individual contaminant, the daily intake averaged over the exposure period is divided by the RfD to derive the hazard quotient:

$$HQ = DI/RfD \tag{9}$$

where:

HQ = Hazard Quotient for subchronic (HQ_S) or chronic (HQ_C) exposure (unitless)
DI = Daily Intake (mg/kg-day), either from subchronic (DI_S) or chronic (DI_C) exposure
RfD = Reference Dose (mg/kg-day), either for subchronic (RfD_S) or chronic (RfD_C) exposure

The RfD is the average daily dose that could be incurred without an appreciable risk of deleterious health effects. Reference doses have been derived for both chronic (greater than seven years) and subchronic (less than or equal to seven years) exposure periods. Potential exposures for the 1- to 2-year-old child and renovation worker considered in this risk assessment are for periods of less than seven years; therefore, subchronic RfDs are considered appropriate for these potentially exposed populations. For the other populations, the exposure periods are longer and chronic RfDs apply.

The estimated average daily intakes resulting from exposure to the contaminants of concern at the site were presented in Section 3 and the RfDs for these contaminants were identified in Tables 4-1, 4-2 and 4-3.

For an individual contaminant, a hazard quotient of less than 1.0 indicates a nonhazardous situation. The hazard quotients for all contaminants and pathways affecting a given population for the same exposure period are summed to determine a hazard index (HI), namely:

$$HI = HQ_1 + HQ_2 + HQ_3 + \ldots\ldots\ldots HQ_i \quad (10)$$

where:

HI = Hazard Index for either subchronic or chronic exposure
HQ_1 = Hazard Quotient for the first chemical
HQ_i = Hazard Quotient for the ith chemical

If a screening level HI determined in this way is equal to or less than 1.0, it is presumed that noncarcinogenic health effects will not occur. If an HI exceeds 1.0, there is some possibility that noncarcinogenic effects could arise. This screening level approach assumes that all noncancer effects are additive. This, however, may not hold true in some cases. Effects caused by one chemical on a particular tissue or organ are not always influenced by the effects of another chemical on another tissue or organ (EPA, 1989). In instances where each contaminant-specific HQ is less than 1.0, but the sum of HQs is greater than 1.0, the major toxic effects of the individual contaminants are examined to determine the potential hazard associated with exposure to multiple contaminants. A hazard index of 1.0 is currently the MDEP Massachusetts Contingency Plan risk limit for noncancer health effects.

Detailed calculations for noncarcinogenic effects are presented in Appendix A. Because of the uncertainty inherent in the calculation of HQ values, all HQs are reported to only one significant figure. Hazard indices estimated for noncancer health hazards for populations evaluated for the site are summarized in Tables 5-2 and 5-3.

Subchronic hazard indices exceed 1E+00 for each population evaluated at all five buildings. For the resident child the calculated hazard indices ranged from 6 (Building 313) to 40 (Building 37). For the renovation worker, HI values ranged from 10 to 70 at the same buildings. Chromium is the major contributor to these HI values in all the buildings. The PCBs contribute to a lesser extent in Buildings 39 and 313.

Chronic hazard indices are all 1E+00 or below for the commercial worker and adult resident evaluated in all buildings (except Building 312). The only chemical-specific HQ that exceeded 1E+00 in any building, for any population was for cadmium (Building 312).

5.3 EVALUATION OF RISKS FROM EXPOSURE TO LEAD

Since there are no EPA-approved toxicity values for lead, it is not possible to evaluate the noncancer risks of lead exposure by calculation of a HQ or HI. This is because neither a clear toxicological threshold nor a cancer-type model (where a risk is associated with every level of exposure) has been defined for lead. Multiple sources (both indoors and outdoors) further complicate the assessment of risk. An alternative approach used in the baseline risk assessment prepared as part of the RI is to estimate the likely effect of lead exposure on the concentration of lead in the blood (PbB). Several mathematical models have been developed for calculating the value of PbB as a function of environmental concentrations of lead.

The model used in the previous risk assessment to predict blood lead levels was the Uptake/Biokinetic Model (UBK) which has been subsequently revised and renamed as the Integrated Exposure Uptake Biokinetic Model (IEUBK) for children (EPA, 1994). The model integrates exposures from all environmental media relevant to a young child. In its current stage (LEAD99d) the model includes a default value for indoor lead of 3E-05 $\mu g/m^3$, which is based on a percentage of lead in outdoor air. The computerized model does not, at this time, allow for input of site-specific indoor air concentrations. Therefore, unacceptable levels of lead on surfaces will be determined in the Remedial Action Plan based on background levels, i.e., concentrations of lead detected on surfaces in residential buildings.

5.4 RISK CHARACTERIZATION SUMMARY

Exposure profiles were developed for two potential reuse scenarios of the existing buildings at the MTL -- residential and commercial. These scenarios took into consideration the fact that major renovation may be necessary prior to reuse. Thus, four populations were evaluated -- residential adults, residential children, commercial workers and renovation workers.

For residential reuse, carcinogenic risks exceed 1E-05 at each of the five buildings evaluated. The primary contributors to these risks are beryllium, chromium, cadmium and PCBs. Carcinogenic risks due to the same chemicals to worker populations exceed 1E-05 in several of the buildings evaluated. Subchronic hazard indices calculated for residents and renovation workers are all greater than or equal to 1E+00, indicating a concern for noncancer adverse health effects. Chronic hazard indices were generally below a level of concern, except in Building 312 (cadmium). Although an acceptable methodology for determining the risks due to lead is not available, the assumed level of lead in the indoor air under a residential reuse scenario is approximately an order of magnitude higher than the assumed default used in the IEUBK (LEAD99d) model. Thus, it can be inferred that lead on surfaces in MTL buildings poses some concern if these buildings are to be used as residences where young children might live.

Cleanup goals are established for each of the chemicals of concern as part of the Remedial Action Report.

SECTION 6

UNCERTAINTY ANALYSIS

A number of factors introduce uncertainty into any exposure and risk estimate. A number of these were discussed in the RI risk assessment (WESTON, 1993). Those key factors and assumptions are also relevant here. The primary source of uncertainty in this risk assessment, however, is due to assumed methodology for translating detectable surface contamination into estimates of exposure.

The calculated risks presented in this risk assessment are estimates based on information currently available regarding redispersion of indoor surface contamination. They are highly uncertain -- the true values may be orders of magnitude different from these estimates.

Redispersion of indoor surface contamination in air is dependent on so many factors that quantification of risk from this source is extremely uncertain. Reported data for resuspension factors range over several orders of magnitude, even in an experiment with relatively constant and reproducible conditions (Sansone, 1987). Factors identified that influence the substantial variability of resuspension factors include:

- The vigor and frequency of human activity
- The fraction of transferable versus total surface contamination
- The nature of the contaminant -- particle size, density, other physical characteristics and whether it was applied as a solid, suspension or solution
- The characteristics of the surface material -- porous or impervious
- Ventilation rate
- The size of the contaminated surface area in relation to the total volume of the area

Based on all these factors, most of which are unknown at the MTL, the ability to predict airborne concentrations should be considered poor.

Risks calculations involving chromium conservatively used the toxicity values associated with hexavalent chromium. This form of chromium is considered much more toxic than trivalent chromium, which is generally more prevalent in the environment. If the chromium on the building surfaces is in fact trivalent, then the actual risk levels have been overestimated.

Exposure to residual chemical contamination on interior walls by ingestion, direct contact with bare skin or contact with resuspended dust accumulated on other surfaces is also highly uncertain. Estimates of ingestion rates cited in the literature also differ by more than an order of magnitude.

Two primary factors utilized in this risk assessment could result in an underestimate of risk. Although some PAHs are considered inhalation carcinogens, EPA has withdrawn the slope factor pending a review of the supporting toxicological data. Thus cancer risks due to PAHs via the inhalation route were not estimated, thereby underestimating risk by some unknown amount. The assumption that a chemical not detected is absent from a building surface may underestimate risk if that chemical is present at a level below that which the laboratory can measure. These two aspects of uncertainty are not likely to affect risk estimates to an extent that approaches the uncertainty associated with selection of an appropriate resuspension factor or other exposure factors related to contaminant intake from building surfaces.

It is recommended that the estimates presented here be used with a measure of caution. The most reasonable conclusion would be that the buildings do contain significant surface contamination related to Army activities and that a cleanup effort should be instituted to remove the contamination before the buildings can be used for residential or commercial purposes.

SECTION 7

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TABLES AND FIGURES FOR TR-1423-5B

TABLE 2-1 SUMMARY OF FREQUENCY OF DETECTION AND RANGE OF CONCENTRATION OF CHEMICALS IN MTL CHEMICAL WIPE SAMPLES

	Building Interior Wipe Samples					
	Frequency of Detection		Range of Detected Values ($\mu g/cm^2$)		Range of Detection Limits ($\mu g/cm^2$)	
Chemical	Hits	Total	Minimum	Maximum	Minimum	Maximum
Aluminum	847	854	0.0154	140	0.028	0.112
Antimony	38	854	0.0126	3.63	0.0327	980
Arsenic	87	837	0.00627	7.1	0.00417	0.833
Barium	671	854	0.00675	20.4	0.00107	0.0329
Beryllium	76	854	0.00124	9.55	0.000712	0.00427
Cadmium	392	854	0.0031	25.4	0.002	4,000
Calcium	854	854	0.062	775	--	--
Chromium	783	854	0.00183	70.4	0.0026	0.0141
Cobalt	312	854	0.00596	6.95	0.00417	0.025
Copper	793	854	0.00726	149	0.0071	0.0326
Iron	853	854	0.0151	2,190	0.0333	0.0333
Lead	563	815	0.0192	588	0.0186	0.709
Magnesium	853	854	0.123	273	0.0253	0.0253
Manganese	468	854	0.0226	28.1	0.0247	0.0987
Mercury	572	838	0.000137	1.12	0.000136	0.000564
Nickel	510	854	0.00719	104	0.00319	0.685
Potassium	415	854	0.333	279	0.218	1.6
Selenium	13	815	0.0723	0.631	0.000207	0.904
Silver	260	854	0.00178	1.13	0.00161	0.0101
Sodium	852	854	0.115	249	0.0968	0.931
Thallium	9	854	0.0968	2.69	0.0572	0.57
Vanadium	366	854	0.00313	6.07	0.00282	0.0141
Zinc	853	854	0.0282	121	0.00585	0.00585
Cyanide	118	599	0.0014	7.6	0.00125	0.0125
Nitrite, nitrate - nonspecific	68	103	0.00205	9.95	0.00125	0.005
2-Fluorophenol	1	1	0.07	0.07	--	--
Benzoic acid	12	808	0.043	0.52	0.02	5
Benzyl alcohol	35	808	0.003	0.13	0.00085	0.051
Bis (2-chloroethyl) ether	0	808	--	--	0.0095	0.58
Bis (2-chloroethyoxy) methane	0	808	--	--	0.005	0.3
Bis (2-chloroisopropyl) ether	0	808	--	--	0.012	0.7
Bromophenylphenyl ether, 4-	0	808	--	--	0.0011	0.066
Chloroaniline, 4-	0	808	--	--	0.004	1
Chloronaphthalene, 2-	0	808	--	--	0.0065	0.38
Chlorophenol, 2-	0	808	--	--	0.0015	0.088

continued-

Table 2-1 - continued

Chemical	Building Interior Wipe Samples					
	Frequency of Detection		Range of Detected Values ($\mu g/cm^2$)		Range of Detection Limits ($\mu g/cm^2$)	
	Hits	Total	Minimum	Maximum	Minimum	Maximum
Chlorophenylphenyl ether, 4-	0	808	--	--	0.0046	0.27
Dibenzofuran	0	808	--	--	0.01	0.61
Dichlorobenzene, 1,2-	1	808	0.04	0.04	0.0011	0.067
Dichlorobenzene, 1,3-	2	808	0.025	0.083	0.0011	0.067
Dichlorobenzene, 1,4-	4	808	0.013	0.19	0.0009	0.051
Dichlorobenzidine, 3,3'-	0	808	--	--	0.043	2.6
Dichlorophenol, 2,4-	0	808	--	--	0.0018	0.1
Dimethyl phthalate	7	808	0.005	0.049	0.0017	0.1
Dimethylphenol, 2,4-	0	808	--	--	0.08	4.8
Dinitrophenol, 2,4-	0	808	--	--	0.13	7.5
Hexachlorobenzene	0	808	--	--	0.0022	0.13
Hexachlorobutadiene	0	808	--	--	0.026	1.6
Hexachlorocyclopentadiene	0	808	--	--	0.014	0.83
Hexachloroethane	0	808	--	--	0.048	2.9
Isophorone	0	808	--	--	0.011	0.62
Methyl-4,6,dinitrophenol, 2-	0	808	--	--	0.022	1.3
Methyl-4-chlorophenol, 3-	0	808	--	--	0.025	1.5
Methylnaphthalene, 2-	15	808	0.0027	0.12	0.00085	0.051
Methylphenol, 2-	0	808	--	--	0.0026	0.16
Methylphenol, 4-	14	808	0.016	0.075	0.00076	0.24
N-Nitrosodi-N-propylamine	0	808	--	--	0.03	1.8
N-Nitrosodiphenylamine	0	808	--	--	0.0075	0.46
Naphthalene	3	808	0.059	0.14	0.02	1.2
Nitroaniline, 2-	0	807	--	--	0.02	5
Nitroaniline, 3-	0	808	--	--	0.08	4.8
Nitroaniline, 4-	0	808	--	--	0.02	5
Nitrophenol, 2-	0	808	--	--	0.03	1.8
Nitrophenol, 4-	0	808	--	--	0.09	5.3
Pentachlorophenol	2	808	0.21	0.5	0.021	1.2
Phenol	13	808	0.006	0.39	0.0014	0.28
Trichlorobenzene, 1,2,4-	10	808	0.009	0.11	0.006	0.35
Trichlorophenol, 2,4,5-	0	808	--	--	0.013	0.78
Trichlorophenol, 2,4,6-	0	808	--	--	0.0002	0.061
Acenaphthene	4	808	0.004	0.08	0.0011	0.066
Acenaphthylene	10	808	0.003	0.012	0.0009	0.053
Anthracene	1	808	0.23	0.23	0.019	1.1
Benzo (a) anthracene	33	808	0.002	0.54	0.0011	0.066

-continued-

Table 2-1 - continued

Chemical	Building Interior Wipe Samples					
	Frequency of Detection		Range of Detected Values ($\mu g/cm^2$)		Range of Detection Limits ($\mu g/cm^2$)	
	Hits	Total	Minimum	Maximum	Minimum	Maximum
Benzo (a) pyrene	1	808	0.33	0.33	0.032	1.9
Benzo (b) fluoranthene	5	808	0.016	0.33	0.0085	0.5
Benzo (g,h,i) perylene	4	808	0.02	0.18	0.0048	0.29
Benzo (k) fluoranthene	8	808	0.008	0.026	0.0035	0.21
Chrysene	30	808	0.0019	0.96	0.00085	0.051
Dibenz (a,h) anthracene	1	808	0.065	0.065	0.0085	0.5
Fluoranthene	82	808	0.0017	0.38	0.00085	0.051
Fluorene	5	808	0.005	0.28	0.0018	0.1
Indeno (1,2,3-cd) pyrene	0	808	--	--	0.065	3.8
Phenanthrene	167	808	0.0013	0.96	0.00085	0.051
Pyrene	44	808	0.0038	0.5	0.0022	0.13
Bis (2-ethylhexyl) phthalate	503	808	0.013	5.3	0.015	0.77
Butylbenzyl phthalate	221	808	0.072	5.4	0.048	2.9
Di-N-butyl phthalate	141	808	0.016	11	0.035	2.1
Di-N-octyl phthalate	62	808	0.019	1.5	0.006	0.37
Diethyl phthalate	13	808	0.012	1.1	0.0065	0.38
Aldrin	24	228	0.000099	0.00587	0.000056	0.0014
Alpha-Endosulfan	37	228	0.000065	0.00315	0.00004	0.001
Alpha-Hexachlorocyclohexane	10	228	0.000122	0.000405	0.00014	0.0028
Atrazine	0	808	--	--	0.0018	0.1
Beta-Endosulfan	91	228	0.00004	0.00705	0.000035	0.0007
Beta-Hexachlorocyclohexane	0	228	--	--	0.000308	0.0077
Chlordane	0	228	--	--	0.00274	0.0684
DDD	59	228	0.00014	0.00461	0.000108	0.00054
DDE	70	228	0.000268	0.01	0.000108	0.0027
DDT	123	228	0.000183	0.1	0.000175	0.0007
Delta-Hexachlorocyclohexane	1	228	0.00143	0.00143	0.00034	0.0085
Dieldrin	75	228	0.000093	0.0322	0.00008	0.00032
Diisopropylmethyl phosphonate	1	228	0.304	0.304	0.00125	0.0025
Dimethylmethyl phosphate	0	228	--	--	0.0005	0.0015
Endosulfan sulfate	6	228	0.000055	0.00204	0.00002	0.00417
Endrin	53	228	0.00033	0.05	0.00015	0.00534
Endrin aldehyde	1	228	0.00008	0.00008	0.000033	0.00005
Endrin ketone	17	228	0.000047	0.00576	0.00002	0.0126
Gamma-Hexachlorocyclohexane	38	228	0.000045	0.01	0.00004	0.001
Heptachlor	17	228	0.000227	0.00235	0.000088	0.0022
Heptachlor epoxide	28	228	0.000106	0.00538	0.000052	0.0013

-continued-

Table 2-1 - continued

Chemical	Building Interior Wipe Samples					
	Frequency of Detection		Range of Detected Values ($\mu g/cm^2$)		Range of Detection Limits ($\mu g/cm^2$)	
	Hits	Total	Minimum	Maximum	Minimum	Maximum
Isodrin	13	228	0.000189	0.01	0.00012	0.003
Methoxychlor	9	228	0.00226	0.0552	0.00144	0.0359
PCB 1016	0	221	--	--	0.0022	0.1
PCB 1221	0	221	--	--	0.0022	0.1
PCB 1232	0	221	--	--	0.0022	0.1
PCB 1242	0	221	--	--	0.0022	0.1
PCB 1248	0	221	--	--	0.0022	0.1
PCB 1254	22	221	0.00515	0.689	0.00105	0.2
PCB 1260	30	221	0.00206	0.2	0.00192	0.0479
Toxaphene	0	228	--	--	0.00904	0.226
Dinitrobenzene, 1,3-	0	102	--	--	0.00202	0.0101
Dinitrotoluene, 2,4-	12	910	0.0175	2.89	0.01	2.2
Dinitrotoluene, 2,6-	0	910	--	--	0.008	2
HMX	4	102	0.0102	0.0424	0.008	0.04
Nitrobenzene	0	910	--	--	0.00456	2.9
RDX	46	102	0.00704	1.32	0.00512	128
TETRYL	0	102	--	--	0.00844	0.0422
Trinitrobenzene, 1,3,5-	0	102	--	--	0.00369	9,200
Trinitrotoluene, 2,4,6-	1	102	0.055	0.055	0.008	0.04

TABLE 2-2 SUMMARY OF CHEMICALS DETECTED IN BACKGROUND WIPE SAMPLES

Chemical	Range of Detected Values ($\mu g/cm^2$) Minimum	Maximum
Aluminum	0.225	19.6
Barium	0.0542	1.89
Calcium	1.94	180
Chromium	0.0197	0.0928
Copper	0.0325	0.227
Iron	0.191	40.9
Lead	0.0789	0.298
Magnesium	0.435	35.2
Manganese	0.269	0.852
Mercury	0.00064	0.001
Nickel	0.0376	0.0557
Potassium	1.45	6.08
Sodium	1.19	15.5
Vanadium	0.023	0.0682
Zinc	0.0687	0.717
Nitrite, nitrate - nonspecific	0.0204	0.214
2,2-Bis (p-chlorophenyl)-1,1,1-trichloroethane	0.001	0.001
Bis (2-ethylhexyl) phthalate	0.092	0.99
Butylbenzyl phthalate	0.12	0.71
Beta-Endosulfan	0.000189	0.000189
Dieldrin	0.000459	0.001
Endosulfan sulfate	0.000435	0.048
Endrin ketone	0.000282	0.00139

TABLE 2-3 CHEMICALS EVALUATED AS ESSENTIAL NUTRIENTS

Chemical	Wipe Concentration, mg/m^2[a]	Daily Intake, mg/day[b]	RDA, mg/day[c]	Daily Intake > RDA?
Calcium	7,750	7.75	1,200	No
Copper	1,490	1.49	3	No
Iron	21,900	21.9	30	No
Magnesium	2,730	2.73	400	No
Manganese	281	0.281	5	No
Potassium	2,790	2.79	2,000	No
Sodium	2,490	2.49	500	No
Zinc	1,121	1.12	19	No

(a) Maximum concentration in any wipe sample (from Table 2-1).
(b) Calculated by multiplying wipe concentration by an assumed daily ingestion rate of 1E-03 m^2/day (see Table 3-9).
(c) Recommended Dietary Allowance (NAS, 1989).

TABLE 2-4 CHEMICALS ELIMIN..TED FROM RISK QUANTIFICATION

Chemical	Rationale for Elimination
Aluminum	No toxicity information available
Calcium	Essential nutrient
Cobalt	No toxicity information available
Copper	Essential nutrient
Iron	Essential nutrient
Magnesium	Essential nutrient
Manganese	Essential nutrient
Potassium	Essential nutrient
Selenium	Infrequent detection
Sodium	Essential nutrient
Thallium	Infrequent detection
Zinc	Essential nutrient
2-Fluorophenol	Infrequent detection
Benzoic acid	Infrequent detection
Benzyl alcohol	Infrequent detection
1,2-Dichlorobenzene	Infrequent detection
1,3-Dichlorobenzene	Infrequent detection
1,4-Dichlorobenzene	Infrequent detection
Dimethyl phthalate	Infrequent detection
4-Methylphenol	Infrequent detection
Pentachlorophenol	Infrequent detection
Phenol	Infrequent detection
1,2,4-Trichlorobenzene	No toxicity information available
Diethylphthalate	Infrequent detection
alpha-Hexachlorocyclohexane	Infrequent detection
delta-Hexachlorocyclohexane	Infrequent detection
Diisopropylmethylphosphonate	Infrequent detection
Endosulfan sulfate	Infrequent detection
Endrin aldehyde	Infrequent detection
Endrin ketone	No toxicity information available
Isodrin	No toxicity information available
HMX	Infrequent detection
TNT	Infrequent detection

TABLE 2-5 CHEMICALS SELECTED AS CHEMICALS OF POTENTIAL CONCERN FOR THE INDOOR RISK ASSESSMENT

Acenaphthene
Acenaphthylene
Aldrin
Alpha-Endosulfan
Anthracene
Antimony
Arsenic
Barium
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Benzo(g,h,i)perylene
Benzo(k)fluoranthene
Beryllium
Beta-Endosulfan
Bis(2-ethylhexyl)phthalate
Butylbenzyl phthalate
Cadmium
Chromium
Chrysene
Cyanide
DDD
DDE
DDT
Di-n-butyl phthalate
Di-n-octylphthalate
Dibenz(a,h)anthracene
Dieldrin
Dinitrotoluene, 2,4-
Endrin
Fluoranthene
Fluorene
Gamma-BHC
Heptachlor
Heptachlor epoxide
Lead
Mercury
Methoxychlor
Naphthalene
Naphthalene, 2-methyl-
Nickel
Nitrite, nitrate
PCB 1260, 1254
Phenanthrene
Pyrene
RDX
Silver
Vanadium

TABLE 3-1 SUMMARY OF BUILDING USES AND SAMPLING ACTIVITIES

Building/ Structure	Present/Historical Use	Sampling Summary
36	Now contains offices, conference rooms, cafeteria, library, auditorium. Once used in manufacturing shells but has undergone considerable renovation.	8 rooms
37*	Contains automotive repair, paint, carpentry shops, offices, metal heat treating. In the past was a machine shop, foundry, open hearth furnace.	20 rooms
39*	Former piano and mattress factory. Now used for laboratories and offices. Recent operations include depleted uranium (DU) metal polishing.	86 rooms
43	Used previously as a blacksmith shop for metal forging, DU extrusion. Contained melt furnace, mills, presses and ovens.	8 room
60	Central powerhouse and boiler room.	3 rooms
97	Originally a railroad locomotive shop, later housed operations associated with the nuclear reactor (including laboratories). Now contains laboratories and linear accelerators.	9 rooms
111	Installation Commander Housing.	4 rooms
117/118	Former animal housing, now contains military/military dependent housing.	1/3 rooms
131	Administrative Offices.	5 rooms
243	Metal building for storage of various chemicals prior to use.	1 room
244/245	Propellant/explosive storage bunkers.	Not Applicable
292	Originally a metal stock storehouse and used for plating operations. Now contains offices and laboratories.	32 rooms
311*	Historically contained a number of manufacturing operations associated with armament research and manufacturing. Currently contains research laboratories, storage and offices.	43 rooms
312*	Past operations included assembly of gun carriages, machining, plating. Now contains offices and laboratories.	36 rooms
313*	Shop area now and used for ballistics ranges, laboratories, administrative offices.	39 rooms

* Building selected for use in exposure point concentration calculation. See Subsection 3.3.1.

TABLE 3-2 EXPOSURE POINT CONCENTRATIONS - BUILDING 37

Exposure Point: Zone 3 - Building 37
Medium: Wipe
Units: mg/m^2
U Multiplier: 0

Chemical	EPC Hits	EPC Total	Max Value	Max Hit	Arith Mean	EPC (mg/m^2)	EPC - AIR R = 1E-04 (mg/m^3)	EPC - AIR R = 1E-05 (mg/m^3)
Antimony	1	57	1.6E+00	1.6E+00	2.8E-02	2.8E-02	2.8E-06	2.8E-07
Arsenic	22	57	2.6E+00	2.6E+00	2.2E-01	2.2E-01	2.2E-05	2.2E-06
Barium	52	57	2.0E+02	2.0E+02	1.2E+01	1.2E+01	1.2E-03	1.2E-04
Beryllium	3	57	7.6E-02	7.6E-02	3.1E-03	3.1E-03	3.1E-07	3.1E-08
Cadmium	36	57	4.0E+00	4.0E+00	4.3E-01	4.3E-01	4.3E-05	4.3E-06
Chromium	56	57	4.5E+02	4.5E+02	1.5E+01	1.5E+01	1.5E-03	1.5E-04
Lead	52	57	2.7E+02	2.7E+02	2.2E+01	2.2E+01	2.2E-03	2.2E-04
Mercury	55	57	3.8E-01	3.8E-01	5.0E-02	5.0E-02	5.0E-06	5.0E-07
Nickel	46	57	2.4E+02	2.4E+02	8.3E+00	8.3E+00	8.3E-04	8.3E-05
Silver	31	57	2.8E+00	2.8E+00	2.1E-01	2.1E-01	2.1E-05	2.1E-06
Vanadium	45	57	1.0E+01	1.0E+01	7.7E-01	7.7E-01	7.7E-05	7.7E-06
Cyanide	16	57	1.1E+00	1.1E+00	7.0E-02	7.0E-02	7.0E-06	7.0E-07
Nitrite, nitrate - nonspecific	0	0	–	–	–	–	–	–
Acenaphthene	0	57	0.0	0.0	0.0	0.0	–	–
Acenaphthylene	0	57	0.0	0.0	0.0	0.0	–	–
Anthracene	0	57	0.0	0.0	0.0	0.0	–	–
Benzo (a) anthracene	2	57	2.3E-01	2.3E-01	5.4E-03	5.4E-03	5.4E-07	5.4E-08
Benzo (a) pyrene	0	57	0.0	0.0	0.0	0.0	–	–
Benzo (b) fluoranthene	0	57	0.0	0.0	0.0	0.0	–	–
Benzo (g,h,i) perylene	0	57	0.0	0.0	0.0	0.0	–	–
Benzo (k) fluoranthene	1	57	2.6E-01	2.6E-01	4.6E-03	4.6E-03	4.6E-07	4.6E-08
Chrysene	2	57	2.8E-01	2.8E-01	7.2E-03	7.2E-03	7.2E-07	7.2E-08
Dibenz (a,h) anthracene	0	57	0.0	0.0	0.0	0.0	–	–
Fluoranthene	11	57	5.7E-01	5.7E-01	5.2E-02	5.2E-02	5.2E-06	5.2E-07
Fluorene	0	57	0.0	0.0	0.0	0.0	–	–
Methylnaphthalene, 2-	2	57	1.2E+00	1.2E+00	2.7E-02	2.7E-02	2.7E-06	2.7E-07
Naphthalene	0	57	0.0	0.0	0.0	0.0	–	–
Phenanthrene	17	57	5.0E+00	5.0E+00	1.7E-01	1.7E-01	1.7E-05	1.7E-06
Pyrene	6	57	4.1E-01	4.1E-01	3.2E-02	3.2E-02	3.2E-06	3.2E-07
Bis (2-ethylhexyl) phthalate	82	114	9.9E+00	9.9E+00	1.9E+00	1.9E+00	1.9E-04	1.9E-05
Butylbenzyl phthalate	6	57	2.7E+00	2.7E+00	1.9E-01	1.9E-01	1.9E-05	1.9E-06
Di-N-butyl phthalate	3	57	5.0E+00	5.0E+00	1.4E-01	1.4E-01	1.4E-05	1.4E-06
Di-N-octyl phthalate	2	57	2.7E+00	2.7E+00	9.1E-02	9.1E-02	9.1E-06	9.1E-07
Aldrin	8	57	5.9E-02	5.9E-02	3.6E-03	3.6E-03	3.6E-07	3.6E-08
Alpha-Endosulfan	14	57	3.2E-02	3.2E-02	1.8E-03	1.8E-03	1.8E-07	1.8E-08
Beta-Endosulfan	21	57	3.0E-02	3.0E-02	1.7E-03	1.7E-03	1.7E-07	1.7E-08
DDD	16	57	4.6E-02	4.6E-02	4.7E-03	4.7E-03	4.7E-07	4.7E-08
DDE	23	57	6.8E-02	6.8E-02	6.0E-03	6.0E-03	6.0E-07	6.0E-08
DDT	28	57	1.1E-01	1.1E-01	1.7E-02	1.7E-02	1.7E-06	1.7E-07
Dieldrin	26	57	6.7E-02	6.7E-02	4.6E-03	4.6E-03	4.6E-07	4.6E-08
Endrin	6	57	1.5E-02	1.5E-02	1.1E-03	1.1E-03	1.1E-07	1.1E-08
Gamma-Hexachlorocyclohexane	11	57	2.8E-03	2.8E-03	2.9E-04	2.9E-04	2.9E-08	2.9E-09
Heptachlor	2	57	5.3E-03	5.3E-03	1.3E-04	1.3E-04	1.3E-08	1.3E-09
Heptachlor epoxide	7	57	3.6E-03	3.6E-03	3.4E-04	3.4E-04	3.4E-08	3.4E-09
Methoxychlor	2	57	2.0E-01	2.0E-01	4.0E-03	4.0E-03	4.0E-07	4.0E-08
PCB 1254	4	57	1.5E-01	1.5E-01	6.5E-03	6.5E-03	6.5E-07	6.5E-08
PCB 1260	7	57	4.9E-01	4.9E-01	2.9E-02	2.9E-02	2.9E-06	2.9E-07
Dinitrotoluene, 2,4-	0	57	0.0	0.0	0.0	0.0	–	–
RDX	0	0	–	–	–	–	–	–

TABLE 3-3 EXPOSURE POINT CONCENTRATIONS - BUILDING 39

Exposure Point: Zone 2 - Building 39
Medium: Wipe
Units: mg/m^2
U Multiplier: 0

Chemical	EPC Hits	EPC Total	Max Value	Max Hit	Arith Mean	EPC (mg/m^2)	EPC - Air R = 1E-04 (mg/m^3)	EPC - Air R = 1E-05 (mg/m^3)
Antimony	9	269	3.6E+01	3.6E+01	2.6E-01	2.6E-01	2.6E-05	2.6E-06
Arsenic	9	259	7.1E+01	7.1E+01	3.0E-01	3.0E-01	3.0E-05	3.0E-06
Barium	213	269	2.0E+02	2.0E+02	5.0E+00	5.0E+00	5.0E-04	5.0E-05
Beryllium	6	269	8.5E-02	8.5E-02	8.8E-04	8.8E-04	8.8E-08	8.8E-09
Cadmium	100	269	1.3E+02	1.3E+02	1.3E+00	1.3E+00	1.3E-04	1.3E-05
Chromium	246	269	7.0E+02	7.0E+02	7.5E+00	7.5E+00	7.5E-04	7.5E-05
Lead	188	269	4.2E+02	4.2E+02	1.1E+01	1.1E+01	1.1E-03	1.1E-04
Mercury	194	259	1.1E+01	1.1E+01	1.3E-01	1.3E-01	1.3E-05	1.3E-06
Nickel	152	269	1.0E+03	1.0E+03	7.0E+00	7.0E+00	7.0E-04	7.0E-05
Silver	72	269	1.1E+01	1.1E+01	2.0E-01	2.0E-01	2.0E-05	2.0E-06
Vanadium	99	269	6.1E+01	6.1E+01	3.8E-01	3.8E-01	3.8E-05	3.8E-06
Cyanide	45	243	2.1E+01	2.1E+01	2.1E-01	2.1E-01	2.1E-05	2.1E-06
Nitrite, nitrate - nonspecific	2	3	3.4E+00	3.4E+00	1.5E+00	1.5E+00	1.5E-04	1.5E-05
Acenaphthene	1	278	5.5E-02	5.5E-02	2.0E-04	2.0E-04	2.0E-08	2.0E-09
Acenaphthylene	7	278	1.2E-01	1.2E-01	1.8E-03	1.8E-03	1.8E-07	1.8E-08
Anthracene	0	278	0.0	0.0	0.0	0.0	–	–
Benzo (a) anthracene	17	278	4.0E+00	4.0E+00	2.4E-02	2.4E-02	2.4E-06	2.4E-07
Benzo (a) pyrene	0	278	0.0	0.0	0.0	0.0	–	–
Benzo (b) fluoranthene	0	278	0.0	0.0	0.0	0.0	–	–
Benzo (g,h,i) perylene	0	278	0.0	0.0	0.0	0.0	–	–
Benzo (k) fluoranthene	1	278	2.1E-01	2.1E-01	7.6E-04	7.6E-04	7.6E-08	7.6E-09
Chrysene	15	278	6.0E-01	6.0E-01	9.9E-03	9.9E-03	9.9E-07	9.9E-08
Dibenz (a,h) anthracene	0	278	0.0	0.0	0.0	0.0	–	–
Fluoranthene	24	278	7.6E-01	7.6E-01	1.6E-02	1.6E-02	1.6E-06	1.6E-07
Fluorene	2	278	2.1E-01	2.1E-01	1.1E-03	1.1E-03	1.1E-07	1.1E-08
Methylnaphthalene, 2-	6	278	1.9E-01	1.9E-01	1.8E-03	1.8E-03	1.8E-07	1.8E-08
Naphthalene	2	278	6.2E-01	6.2E-01	4.4E-03	4.4E-03	4.4E-07	4.4E-08
Phenanthrene	61	278	1.5E+00	1.5E+00	3.0E-02	3.0E-02	3.0E-06	3.0E-07
Pyrene	17	278	4.1E+00	4.1E+00	2.8E-02	2.8E-02	2.8E-06	2.8E-07
Bis (2-ethylhexyl) phthalate	314	556	4.2E+01	4.2E+01	2.1E+00	2.1E+00	2.1E-04	2.1E-05
Butylbenzyl phthalate	69	278	5.4E+01	5.4E+01	1.7E+00	1.7E+00	1.7E-04	1.7E-05
Di-N-butyl phthalate	68	278	6.2E+01	6.2E+01	1.3E+00	1.3E+00	1.3E-04	1.3E-05
Di-N-octyl phthalate	9	278	1.5E+01	1.5E+01	1.1E-01	1.1E-01	1.1E-05	1.1E-06
Aldrin	3	23	2.3E-02	2.3E-02	1.9E-03	1.9E-03	1.9E-07	1.9E-08
Alpha-Endosulfan	1	23	2.5E-03	2.5E-03	1.1E-04	1.1E-04	1.1E-08	1.1E-09
Beta-Endosulfan	3	23	7.0E-04	7.0E-04	6.5E-05	6.5E-05	6.5E-09	6.5E-10
DDD	4	23	3.1E-03	3.1E-03	3.7E-04	3.7E-04	3.7E-08	3.7E-09
DDE	3	23	7.2E-03	7.2E-03	6.1E-04	6.1E-04	6.1E-08	6.1E-09
DDT	9	23	1.5E-02	1.5E-02	2.9E-03	2.9E-03	2.9E-07	2.9E-08
Dieldrin	0	23	0.0	0.0	0.0	0.0	–	–
Endrin	4	23	7.8E-03	7.8E-03	9.1E-04	9.1E-04	9.1E-08	9.1E-09
Gamma-Hexachlorocyclohexane	4	23	1.2E-03	1.2E-03	1.5E-04	1.5E-04	1.5E-08	1.5E-09
Heptachlor	0	23	0.0	0.0	0.0	0.0	–	–
Heptachlor epoxide	1	23	2.2E-03	2.2E-03	9.6E-05	9.6E-05	9.6E-09	9.6E-10
Methoxychlor	0	23	0.0	0.0	0.0	0.0	–	–
PCB 1254	4	10	1.7E+00	1.7E+00	4.7E-01	4.7E-01	4.7E-05	4.7E-06
PCB 1260	1	10	5.8E-02	5.8E-02	5.8E-03	5.8E-03	5.8E-07	5.8E-08
Dinitrotoluene, 2,4-	0	281	0.0	0.0	0.0	0.0	–	–
RDX	1	3	1.3E-01	1.3E-01	4.5E-02	4.5E-02	4.5E-06	4.5E-07

TABLE 3-4 EXPOSURE POINT CONCENTRATIONS - BUILDING 311

Exposure Point: Zone 2 - Building 311
Medium: Wipe
Units: mg/m^2
U Multiplier: 0

Chemical	EPC Hits	EPC Total	Max Value	Max Hit	Arith Mean	EPC (mg/m^2)	EPC - Air R = 1E-04 (mg/m^3)	EPC - Air R = 1E-05 (mg/m^3)
Antimony	12	88	4.9E+00	4.9E+00	2.4E-01	2.4E-01	2.4E-05	2.4E-06
Arsenic	19	88	4.5E-01	4.5E-01	4.1E-02	4.1E-02	4.1E-06	4.1E-07
Barium	84	88	6.3E+01	6.3E+01	5.6E+00	5.6E+00	5.6E-04	5.6E-05
Beryllium	10	88	1.0E-01	1.0E-01	4.5E-03	4.5E-03	4.5E-07	4.5E-08
Cadmium	66	88	1.1E+01	1.1E+01	7.7E-01	7.7E-01	7.7E-05	7.7E-06
Chromium	83	88	6.7E+01	6.7E+01	4.1E+00	4.1E+00	4.1E-04	4.1E-05
Lead	76	88	1.6E+02	1.6E+02	1.7E+01	1.7E+01	1.7E-03	1.7E-04
Mercury	65	88	2.1E-01	2.1E-01	2.0E-02	2.0E-02	2.0E-06	2.0E-07
Nickel	74	88	2.1E+01	2.1E+01	3.4E+00	3.4E+00	3.4E-04	3.4E-05
Silver	31	88	6.1E-01	6.1E-01	4.0E-02	4.0E-02	4.0E-06	4.0E-07
Vanadium	63	88	2.6E+01	2.6E+01	1.1E+00	1.1E+00	1.1E-04	1.1E-05
Cyanide	24	90	3.1E-01	3.1E-01	3.0E-02	3.0E-02	3.0E-06	3.0E-07
Nitrite, nitrate - nonspecific	7	8	5.8E+01	5.8E+01	1.7E+01	1.7E+01	1.7E-03	1.7E-04
Acenaphthene	2	87	1.7E-01	1.7E-01	2.4E-03	2.4E-03	2.4E-07	2.4E-08
Acenaphthylene	2	87	1.1E-01	1.1E-01	2.0E-03	2.0E-03	2.0E-07	2.0E-08
Anthracene	0	87	0.0	0.0	0.0	0.0	–	–
Benzo (a) anthracene	4	87	7.2E-01	7.2E-01	2.7E-02	2.7E-02	2.7E-06	2.7E-07
Benzo (a) pyrene	0	87	0.0	0.0	0.0	0.0	–	–
Benzo (b) fluoranthene	0	87	0.0	0.0	0.0	0.0	–	–
Benzo (g,h,i) perylene	0	87	0.0	0.0	0.0	0.0	–	–
Benzo (k) fluoranthene	0	87	0.0	0.0	0.0	0.0	–	–
Chrysene	3	87	7.4E-01	7.4E-01	1.3E-02	1.3E-02	1.3E-06	1.3E-07
Dibenz (a,h) anthracene	0	87	0.0	0.0	0.0	0.0	–	–
Fluoranthene	25	87	3.8E+00	3.8E+00	2.0E-01	2.0E-01	2.0E-05	2.0E-06
Fluorene	2	87	2.9E-01	2.9E-01	3.9E-03	3.9E-03	3.9E-07	3.9E-08
Methylnaphthalene, 2-	1	87	3.0E-02	3.0E-02	3.5E-04	3.5E-04	3.5E-08	3.5E-09
Naphthalene	0	87	0.0	0.0	0.0	0.0	–	–
Phenanthrene	44	87	2.7E+00	2.7E+00	1.5E-01	1.5E-01	1.5E-05	1.5E-06
Pyrene	7	87	2.0E+00	2.0E+00	5.9E-02	5.9E-02	5.9E-06	5.9E-07
Bis (2-ethylhexyl) phthalate	104	174	5.3E+01	5.3E+01	2.4E+00	2.4E+00	2.4E-04	2.4E-05
Butylbenzyl phthalate	22	87	2.5E+01	2.5E+01	1.1E+00	1.1E+00	1.1E-04	1.1E-05
Di-N-butyl phthalate	5	87	2.0E+00	2.0E+00	1.0E-01	1.0E-01	1.0E-05	1.0E-06
Di-N-octyl phthalate	14	87	5.0E+00	5.0E+00	3.4E-01	3.4E-01	3.4E-05	3.4E-06
Aldrin	4	49	8.1E-03	8.1E-03	3.2E-04	3.2E-04	3.2E-08	3.2E-09
Alpha-Endosulfan	12	49	1.6E-02	1.6E-02	1.5E-03	1.5E-03	1.5E-07	1.5E-08
Beta-Endosulfan	20	49	4.7E-02	4.7E-02	3.8E-03	3.8E-03	3.8E-07	3.8E-08
DDD	25	49	3.2E-02	3.2E-02	5.2E-03	5.2E-03	5.2E-07	5.2E-08
DDE	27	49	6.7E-02	6.7E-02	6.7E-03	6.7E-03	6.7E-07	6.7E-08
DDT	33	49	1.0E-01	1.0E-01	2.6E-02	2.6E-02	2.6E-06	2.6E-07
Dieldrin	15	49	8.8E-02	8.8E-02	5.7E-03	5.7E-03	5.7E-07	5.7E-08
Endrin	22	49	5.0E-02	5.0E-02	1.2E-02	1.2E-02	1.2E-06	1.2E-07
Gamma-Hexachlorocyclohexane	16	49	1.0E-01	1.0E-01	7.6E-03	7.6E-03	7.6E-07	7.6E-08
Heptachlor	15	49	2.4E-02	2.4E-02	2.3E-03	2.3E-03	2.3E-07	2.3E-08
Heptachlor epoxide	11	49	5.4E-02	5.4E-02	1.8E-03	1.8E-03	1.8E-07	1.8E-08
Methoxychlor	3	49	5.5E-01	5.5E-01	1.4E-02	1.4E-02	1.4E-06	1.4E-07
PCB 1254	1	51	6.1E-02	6.1E-02	1.2E-03	1.2E-03	1.2E-07	1.2E-08
PCB 1260	1	51	1.3E-01	1.3E-01	2.6E-03	2.6E-03	2.6E-07	2.6E-08
Dinitrotoluene, 2,4-	0	95	0.0	0.0	0.0	0.0	–	–
RDX	4	8	1.3E+01	1.3E+01	1.7E+00	1.7E+00	1.7E-04	1.7E-05

TABLE 3-5 EXPOSURE POINT CONCENTRATIONS - BUILDING 312

Exposure Point: Zone 2 - Building 312
Medium: Wipe
Units: mg/m^2
U Multiplier: 0

Chemical	EPC Hits	EPC Total	Max Value	Max Hit	Arith Mean	EPC (mg/m^2)	EPC - Air R = 1E-04 (mg/m^3)	EPC - Air R = 1E-05 (mg/m^3)
Antimony	6	121	1.2E+01	1.2E+01	2.1E-01	2.1E-01	2.1E-05	2.1E-06
Arsenic	8	115	8.4E+00	8.4E+00	8.3E-02	8.3E-02	8.3E-06	8.3E-07
Barium	98	121	1.1E+02	1.1E+02	3.6E+00	3.6E+00	3.6E-04	3.6E-05
Beryllium	50	121	9.6E+01	9.6E+01	1.3E+00	1.3E+00	1.3E-04	1.3E-05
Cadmium	78	121	2.5E+02	2.5E+02	9.8E+00	9.8E+00	9.8E-04	9.8E-05
Chromium	116	121	1.1E+02	1.1E+02	3.7E+00	3.7E+00	3.7E-04	3.7E-05
Lead	79	102	9.9E+02	9.9E+02	2.5E+01	2.5E+01	2.5E-03	2.5E-04
Mercury	68	114	6.7E-01	6.7E-01	1.9E-02	1.9E-02	1.9E-06	1.9E-07
Nickel	89	121	1.7E+02	1.7E+02	3.6E+00	3.6E+00	3.6E-04	3.6E-05
Silver	49	121	5.3E+00	5.3E+00	2.0E-01	2.0E-01	2.0E-05	2.0E-06
Vanadium	51	121	4.1E+00	4.1E+00	3.0E-01	3.0E-01	3.0E-05	3.0E-06
Cyanide	19	75	7.6E+01	7.6E+01	1.5E+00	1.5E+00	1.5E-04	1.5E-05
Nitrite, nitrate - nonspecific	11	19	1.0E+02	1.0E+02	6.2E+00	6.2E+00	6.2E-04	6.2E-05
Acenaphthene	0	94	0.0	0.0	0.0	0.0	–	–
Acenaphthylene	0	94	0.0	0.0	0.0	0.0	–	–
Anthracene	0	94	0.0	0.0	0.0	0.0	–	–
Benzo (a) anthracene	2	94	1.0E-01	1.0E-01	1.5E-03	1.5E-03	1.5E-07	1.5E-08
Benzo (a) pyrene	0	94	0.0	0.0	0.0	0.0	–	–
Benzo (b) fluoranthene	1	94	1.6E-01	1.6E-01	1.7E-03	1.7E-03	1.7E-07	1.7E-08
Benzo (g,h,i) perylene	1	94	2.0E-01	2.0E-01	2.1E-03	2.1E-03	2.1E-07	2.1E-08
Benzo (k) fluoranthene	3	94	2.5E-01	2.5E-01	5.1E-03	5.1E-03	5.1E-07	5.1E-08
Chrysene	1	94	8.0E-02	8.0E-02	8.5E-04	8.5E-04	8.5E-08	8.5E-09
Dibenz (a,h) anthracene	0	94	0.0	0.0	0.0	0.0	–	–
Fluoranthene	4	94	3.1E-01	3.1E-01	7.5E-03	7.5E-03	7.5E-07	7.5E-08
Fluorene	0	94	0.0	0.0	0.0	0.0	–	–
Methylnaphthalene, 2-	0	94	0.0	0.0	0.0	0.0	–	–
Naphthalene	1	94	1.4E+00	1.4E+00	1.5E-02	1.5E-02	1.5E-06	1.5E-07
Phenanthrene	10	94	7.0E-01	7.0E-01	1.5E-02	1.5E-02	1.5E-06	1.5E-07
Pyrene	4	94	2.1E-01	2.1E-01	5.6E-03	5.6E-03	5.6E-07	5.6E-08
Bis (2-ethylhexyl) phthalate	134	188	9.9E+00	9.9E+00	2.8E+00	2.8E+00	2.8E-04	2.8E-05
Butylbenzyl phthalate	38	94	9.9E+00	9.9E+00	2.1E+00	2.1E+00	2.1E-04	2.1E-05
Di-N-butyl phthalate	22	94	5.3E+00	5.3E+00	6.9E-01	6.9E-01	6.9E-05	6.9E-06
Di-N-octyl phthalate	17	94	3.4E+00	3.4E+00	3.4E-01	3.4E-01	3.4E-05	3.4E-06
Aldrin	4	10	1.9E-02	1.9E-02	3.8E-03	3.8E-03	3.8E-07	3.8E-08
Alpha-Endosulfan	0	10	0.0	0.0	0.0	0.0	–	–
Beta-Endosulfan	3	10	4.0E-03	4.0E-03	1.1E-03	1.1E-03	1.1E-07	1.1E-08
DDD	1	10	5.8E-03	5.8E-03	5.8E-04	5.8E-04	5.8E-08	5.8E-09
DDE	0	10	0.0	0.0	0.0	0.0	–	–
DDT	4	10	3.7E-02	3.7E-02	5.1E-03	5.1E-03	5.1E-07	5.1E-08
Dieldrin	4	10	5.2E-03	5.2E-03	1.7E-03	1.7E-03	1.7E-07	1.7E-08
Endrin	3	10	1.5E-02	1.5E-02	3.9E-03	3.9E-03	3.9E-07	3.9E-08
Gamma-Hexachlorocyclohexane	0	10	0.0	0.0	0.0	0.0	–	–
Heptachlor	0	10	0.0	0.0	0.0	0.0	–	–
Heptachlor epoxide	1	10	2.4E-03	2.4E-03	2.4E-04	2.4E-04	2.4E-08	2.4E-09
Methoxychlor	2	10	7.8E-02	7.8E-02	1.2E-02	1.2E-02	1.2E-06	1.2E-07
PCB 1254	0	10	0.0	0.0	0.0	0.0	–	–
PCB 1260	4	10	2.7E-01	2.7E-01	5.3E-02	5.3E-02	5.3E-06	5.3E-07
Dinitrotoluene, 2,4-	1	112	3.7E-01	3.7E-01	3.3E-03	3.3E-03	3.3E-07	3.3E-08
RDX	12	18	1.9E+00	1.9E+00	4.1E-01	4.1E-01	4.1E-05	4.1E-06

TABLE 3-6 EXPOSURE POINT CONCENTRATIONS - BUILDING 313

Exposure Point: Zone 3 - Building 313
Medium: Wipe
Units: mg/m^2
U Multiplier: 0

Chemical	EPC Hits	EPC Total	Max Value	Max Hit	Arith Mean	EPC (mg/m^2)	EPC - Air R = 1E-04 (mg/m^3)	EPC - Air R = 1E-05 (mg/m^3)
Antimony	6	133	2.9E+01	2.9E+01	3.3E-01	3.3E-01	3.3E-05	3.3E-06
Arsenic	12	132	6.8E-01	6.8E-01	2.7E-02	2.7E-02	2.7E-06	2.7E-07
Barium	97	133	4.8E+01	4.8E+01	2.8E+00	2.8E+00	2.8E-04	2.8E-05
Beryllium	0	133	0.0	0.0	0.0	0.0	–	–
Cadmium	39	133	1.1E+01	1.1E+01	2.0E-01	2.0E-01	2.0E-05	2.0E-06
Chromium	124	133	3.5E+01	3.5E+01	2.0E+00	2.0E+00	2.0E-04	2.0E-05
Lead	68	113	1.1E+03	1.1E+03	3.1E+01	3.1E+01	3.1E-03	3.1E-04
Mercury	82	133	4.4E-01	4.4E-01	2.2E-02	2.2E-02	2.2E-06	2.2E-07
Nickel	79	133	3.3E+02	3.3E+02	8.0E+00	8.0E+00	8.0E-04	8.0E-05
Silver	44	133	2.5E+00	2.5E+00	1.0E-01	1.0E-01	1.0E-05	1.0E-06
Vanadium	48	133	3.2E+00	3.2E+00	1.8E-01	1.8E-01	1.8E-05	1.8E-06
Cyanide	0	0	–	–	–	–	–	–
Nitrite, nitrate - nonspecific	20	32	3.0E+01	3.0E+01	2.3E+00	2.3E+00	2.3E-04	2.3E-05
Acenaphthene	0	106	0.0	0.0	0.0	0.0	–	–
Acenaphthylene	0	106	0.0	0.0	0.0	0.0	–	–
Anthracene	0	106	0.0	0.0	0.0	0.0	–	–
Benzo (a) anthracene	3	106	1.6E-01	1.6E-01	4.2E-03	4.2E-03	4.2E-07	4.2E-08
Benzo (a) pyrene	0	106	0.0	0.0	0.0	0.0	–	–
Benzo (b) fluoranthene	2	106	3.3E+00	3.3E+00	3.9E-02	3.9E-02	3.9E-06	3.9E-07
Benzo (g,h,i) perylene	2	106	1.8E+00	1.8E+00	2.2E-02	2.2E-02	2.2E-06	2.2E-07
Benzo (k) fluoranthene	1	106	1.3E-01	1.3E-01	1.2E-03	1.2E-03	1.2E-07	1.2E-08
Chrysene	3	106	1.9E-01	1.9E-01	3.7E-03	3.7E-03	3.7E-07	3.7E-08
Dibenz (a,h) anthracene	1	106	6.5E-01	6.5E-01	6.1E-03	6.1E-03	6.1E-07	6.1E-08
Fluoranthene	5	106	8.2E-01	8.2E-01	1.5E-02	1.5E-02	1.5E-06	1.5E-07
Fluorene	0	106	0.0	0.0	0.0	0.0	–	–
Methylnaphthalene, 2-	3	106	9.3E-02	9.3E-02	2.4E-03	2.4E-03	2.4E-07	2.4E-08
Naphthalene	0	106	0.0	0.0	0.0	0.0	–	–
Phenanthrene	10	106	1.7E-01	1.7E-01	6.6E-03	6.6E-03	6.6E-07	6.6E-08
Pyrene	1	106	8.0E-02	8.0E-02	7.6E-04	7.6E-04	7.6E-08	7.6E-09
Bis (2-ethylhexyl) phthalate	156	212	8.5E+00	8.5E+00	1.4E+00	1.4E+00	1.4E-04	1.4E-05
Butylbenzyl phthalate	29	106	9.9E+00	9.9E+00	1.1E+00	1.1E+00	1.1E-04	1.1E-05
Di-N-butyl phthalate	16	106	4.1E+00	4.1E+00	2.6E-01	2.6E-01	2.6E-05	2.6E-06
Di-N-octyl phthalate	3	106	2.5E+00	2.5E+00	6.5E-02	6.5E-02	6.5E-06	6.5E-07
Aldrin	0	0	–	–	–	–	–	–
Alpha-Endosulfan	0	0	–	–	–	–	–	–
Beta-Endosulfan	0	0	–	–	–	–	–	–
DDD	0	0	–	–	–	–	–	–
DDE	0	0	–	–	–	–	–	–
DDT	0	0	–	–	–	–	–	–
Dieldrin	0	0	–	–	–	–	–	–
Endrin	0	0	–	–	–	–	–	–
Gamma-Hexachlorocyclohexane	0	0	–	–	–	–	–	–
Heptachlor	0	0	–	–	–	–	–	–
Heptachlor epoxide	0	0	–	–	–	–	–	–
Methoxychlor	0	0	–	–	–	–	–	–
PCB 1254	0	1	0.0	0.0	0.0	0.0	–	–
PCB 1260	1	1	2.3E-01	2.3E-01	2.3E-01	2.3E-01	2.3E-05	2.3E-06
Dinitrotoluene, 2,4-	9	138	2.9E+01	2.9E+01	4.6E-01	4.6E-01	4.6E-05	4.6E-06
RDX	20	32	2.8E+00	2.8E+00	4.7E-01	4.7E-01	4.7E-05	4.7E-06

TABLE 3-7 EXPERIMENTALLY DERIVED RESUSPENSION FACTORS*

Contaminant	Surface Measurement	Activity Description	Measured Resuspension Factor, m^{-1}
1. Radioactive labeled iodine	Total, by ratemeter	Active Work (open and confined spaces)	2E-06 to 4E-05
2. Uranium	Total, by ratemeter	Normal occupational	6E-05
3. Uranium compounds	Transferred by wipe	Normal occupational	3E-05 to 5E-04
4. Radium	Transferred by wipe	Normal occupational	1E-05 to 7E-08
5. Beryllium	Transferred by wipe	Miscellaneous occupational	2E-02 to 8E-03
6. Uranium compounds	Transferred by wipe	Normal occupational	3E-04 to 1E-03
7. Plutonium compounds	Total, by ratemeter	Walking	5E-04 to 5E-05
8. Zinc sulfide powder	Unknown	Vigorous work with sweeping to light work	2E-04 to 9E-06
9. Copper oxide powder	Unknown	Light work and sweeping	7E-04
10. Uranium	Transferred by wipe	Continuous cart movement to undisturbed	1E-04
11. Uranium powder	Transferred by wipe	Normal	2E-05 to 2E-04
		Normal - with added ventilation and vibration	2E-03

continued-

* Adapted and summarized from Sansone, 1989.

Table 3-7 - continued

	Contaminant	Surface Measurement	Activity Description	Measured Resuspension Factor, m^{-1}
12.	Beryllium	Transferred by wipe	Vigorous sweeping	4E-04
13.	Uranium oxide powder	Total, by ratemeter	Walking to undisturbed	2E-05 to 1E-06
14.	Plutonium oxide	Total, by ratemeter	Walking	2E-04 to 2E-07
15.	Plutonium compounds	Total, by ratemeter	Walking	2E-05 to 1E-06
16.	Beryllium	Transferred by wipe	Vigorous sweeping	1E-02 to 4E-04
17.	Uranium oxide powder	Total, by ratemeter	Walking	2E-05

TABLE 3-8 SUMMARY OF VALUES USED IN SELECTING THE RESUSPENSION FACTOR

Values Reported for Under Routine Occupational Conditions		Values Reported Under Vigorous Occupational Conditions	
Study No.*	Value	Study No.*	Value
5	2E-02	16	1E-02
5	8E-03	11	2E-03
6	1E-03	9	7E-04
6	3E-04	16	4E-04
3	5E-04	12	4E-04
7	5E-04	8	2E-04
11	2E-04	10	1E-04
14	2E-04	1	4E-05
2	6E-05	1	2E-06
7	5E-05		
3	3E-05		
17	2E-05		
11	2E-05		
13	2E-05		
15	2E-05		
4	1E-05		
14	2E-07		
8	9E-06		
13	1E-06		
15	1E-06		
4	7E-08		

* Study number references the experiments from Table 3-7.

TABLE 3-9 QUANTIFICATION OF EXPOSURE FROM INHALATION OF CONTAMINATION RELEASED FROM INTERIOR BUILDING SURFACES

Basic Equation: $HIF = (IR \cdot RFR \cdot EF \cdot ED)/(BW \cdot AT)$

Where:

HIF = Human intake factor
IR = Breathing rate (m^3/day)
RFR = Respirable fraction (unitless)
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

		Resident			Worker	
		Child		Adult		
Exposure	Units	Subchronic	Chronic	Lifetime	Commercial	Renovation
IR	m^3/day	15	15	15	9.6	20
RFR	unitless	0.2	0.2	0.2	0.2	0.2
EF	days/year	350	350	350	250	250
ED	years	1	7	30	25	1
BW	kg	10.5	16.8	42.3	70	70
AT (Noncancer)	yr · 365 day/year	1	7	NA*	25	1
AT (Cancer)	yr · 365 day/year	NA	NA	70	70	70
HIF_s or HIF_c	m^3/kg/day	2.7E-01	1.7E-01	NA	1.9E-02	3.9E-02
HIF_l	m^3/kg/day	NA	NA	2.9E-02	6.7E-03	5.6E-04

* NA = Not Applicable.

TABLE 3-10 QUANTIFICATION OF EXPOSURE FROM INGESTION OF CONTAMINATION FROM INTERIOR BUILDING SURFACES

Basic Equation: $HIF = (IR \cdot EF \cdot ED)/(BW \cdot AT)$

Where:

HIF = Human intake factor
IR = Ingestion rate (m^2/day)
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

		Resident				
		Child		Adult	Worker	
Exposure	Units	Subchronic	Chronic	Lifetime	Commercial	Renovation
IR	m^2/day	1E-03	1E-03	1E-03	1E-04	1E-04
EF	days/year	350	350	350	250	250
ED	years	1	7	30	25	1
BW	kg	10.5	16.8	42.3	70	70
AT (Noncancer)	yr · 365 day/year	1	7	NA*	25	1
AT (Cancer)	yr · 365 day/year	NA	NA	70	70	70
HIF_s or HIF_c	m^2/kg/day	9.1E-05	5.7E-05	NA	9.8E-07	9.8E-07
HIF_l	m^2/kg/day	NA	NA	9.7E-06	3.5E-07	1.4E-08

* NA = Not Applicable.

TABLE 3-11 QUANTIFICATION OF EXPOSURE FROM DERMAL CONTACT WITH CONTAMINATION FROM INTERIOR BUILDING SURFACES

Basic Equation: $HIF = (SA \cdot SF \cdot ABS \cdot EF \cdot ED)/(BW \cdot AT)$

Where:

HIF = Human intake factor
SA = Surface area exposed, both hands (m^2)
SF = Fraction removed from surface (unitless)
ABS = Absorption fraction from solid material (unitless)
EF = Exposure frequency (events/year)
ED = Exposure duration (years)
BW = Body weight (kg)
AT = Averaging time (days)

		Resident				
		Child		Adult	Worker	
Exposure	Units	Subchronic	Chronic	Lifetime	Commercial	Renovation
SA	m^2	0.0292	0.0406	0.0946	0.0946	NA
SF	unitless	0.1	0.1	0.1	0.1	NA
EF	events/year	350	350	350	250	NA
ED	years	1	7	30	25	NA
BW	kg	10.5	16.8	42.3	70	NA
AT (Noncancer)	yr · 365 day/year	1	7	NA*	25	NA
AT (Cancer)	yr · 365 day/year	NA	NA	70	70	NA
HIF_s or HIF_c	ABS · m^2/kg/day	2.7E-04	2.3E-04	NA	9.3E-05	NA
HIF_l	ABS · m^2/kg/day	NA	NA	9.2E-05	3.3E-05	NA

* NA = Not Applicable.

TABLE 4-1 SUMMARY OF NONCARCINOGENIC EFFECTS AND TOXICITY VALUES FOR ORAL EXPOSURE TO CHEMICALS OF POTENTIAL CONCERN

Chemical	Critical Effects	Subchronic RfD[a], mg/kg-day	Chronic RfD[b], mg/kg-day	Confidence
Antimony	Increased mortality, altered chemistries	4.0E-04	4.0E-04	Low
Arsenic	Keratosis, hyperpigmentation	3.0E-04	3.0E-04	Medium
Barium	Increased blood pressure	7.0E-02	7.0E-02	Medium
Beryllium	None observed	5.0E-03	5.0E-03	Low
Cadmium (food,soil)	Significant proteinuria	--	1.0E-03	High
Chromium (VI)	None observed	2.0E-02	5.0E-03	Low
Lead and Compounds	Neurological and reproductive effects, hypertension, inhibition of heme synthesis	--	--	--
Mercury, inorganic	Kidney effects	3.0E-04	3.0E-04[c]	--
Nickel	Decreased organ and body weight	2.0E-02	2.0E-02	Medium
Silver	Skin discoloration (argyria)	5.0E-03	5.0E-03	Low
Vanadium	None observed	7.0E-03	7.0E-03[c]	--
Cyanide (free)	Decreased body weight, thyroid effects, myelin degeneration	2.0E-02	2.0E-02	Medium
Nitrate, nitrate - nonspecific	Methemoglobinemia	1.0E-01	1.0E-01	High
Acenaphthene	Hepatotoxicity	6.00E-01	6.0E-02	Low
Acenaphthylene	Effects judged to be similar to acenaphthene	4.0E-02[d]	4.0E-02[d]	--
Anthracene	None observed	3.0E+00	3.0E-01	Low
Benzo (a) anthracene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Benzo (a) pyrene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Benzo (b) fluoranthene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Benzo (g,h,i) perylene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Benzo (k) fluoranthene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Chrysene	Effects judged to be similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Dibenz (a,h) anthracene	Effects judged similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Fluoranthene	Nephropathy, increased liver weight, hematological changes	4.0E-01	4.0E-02	Low
Fluorene	Decreased red blood cell count	4.0E-01	4.0E-02	Low
Methylnaphthalene, 2-	Effects judged similar to naphthalene	4.0E-02[d]	4.0E-02[d]	--
Naphthalene	Decreased body weight	4.0E-02[e]	4.0E-02[e]	--
Phenanthrene	Effects judged similar to pyrene	3.0E-01[f]	3.0E-02[f]	--
Pyrene	Kidney effects	3.0E-01	3.0E-02	Low
Bis (2-ethylhexyl) phthalate	Increased liver weight	2.0E-02	2.0E-02	Medium
Butylbenzyl phthalate	Altered liver weight	2.0E+00	2.0E-01	Low
Di-n-butyl phthalate	Increased mortality	1.0E+00	1.0E-01	Low
Di-n-octyl phthalate	Liver and kidney effects	2.0E-02	2.0E-02[c]	--
Aldrin	Liver lesions	3.0E-05	3.0E-05	Medium
Alpha-Endosulfan	Kidney lesions	2.0E-04	5.0E-05[c]	--
Beta-Endosulfan	Kidney lesions	2.0E-04	5.0E-05[c]	--
DDD, 4,4'-	--	--	--	--
DDE, 4,4'-	--	--	--	--
DDT, 4,4'-	Liver lesions	5.0E-04	5.0E-04	Medium
Dieldrin	Liver lesions	5.0E-05	5.0E-05	Medium
Endrin	Convulsions, liver lesions	3.0E-04	3.0E-04	Medium
Gamma-BHC (Lindane)	Liver and kidney toxicity	3.0E-03	3.0E-04	Medium
Heptachlor	Increased liver weight	5.0E-04	5.0E-04	Low
Heptachlor epoxide	Increased liver weight	1.3E-05	1.3E-05	Low

Table 4-1 - continued

Chemical	Critical Effects	Subchronic RfD, mg/kg-day	Chronic RfD, mg/kg-day	Confidence
Methoxychlor	Reproductive/developmental effects	5.0E-03	5.0E-03	Low
PCB 1254	Reduced birth weights	7.0E-05	7.0E-05	Medium
PCB 1260	Reduced birth weights	7.0E-05	7.0E-05	Medium
Dinitrotoluene, 2,4-	Neurotoxicity, Heinz body formation, and biliary tract hyperplasia	2.0E-03	2.0E-03	High
RDX	Prostate inflammation	3.0E-03	3.0E-03	High

TABLE 4-2 SUMMARY OF NONCARCINOGENIC EFFECTS AND TOXICITY VALUES FOR INHALATION EXPOSURE TO CHEMICALS OF POTENTIAL CONCERN

Chemical	Critical Effects	Subchronic RfC,[a] mg/m³	Subchronic RfD,[b] mg/kg/day	Chronic RfC,[c] mg/m³	Chronic RfD,[b] mg/kg/day	Confidence
Antimony	--	--	--	--	--	--
Arsenic	--	--	--	--	--	--
Barium	Fetotoxicity	5.0E-03[d]	1.4E-03	5.0E-04[e]	1.4E-04	--
Beryllium	--	--	--	--	--	--
Cadmium (food,soil)	--	--	--	--	--	--
Chromium (VI)	Diffuse nasal symptoms	4.0E-06[e]	1.1E-06	--	--	--
Lead and Compounds	--	--	--	--	--	--
Mercury, inorganic	--	--	--	--	--	--
Nickel	--	--	--	--	--	--
Silver	--	--	--	--	--	--
Vanadium	--	--	--	--	--	--
Cyanide (free)	--	--	2.9E-04	--	2.0E-03	--
Nitrate, nitrate - nonspecific	--	--	--	--	--	--
Acenaphthene	--	--	--	--	--	--
Acenaphthylene	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--
Benzo (a) anthracene	--	--	--	--	--	--
Benzo (a) pyrene	--	--	--	--	--	--
Benzo (b) fluoranthene	--	--	--	--	--	--
Benzo (g,h,i) perylene	--	--	--	--	--	--
Benzo (k) fluoranthene	--	--	--	--	--	--
Chrysene	--	--	--	--	--	--
Dibenz (a,h) anthracene	--	--	--	--	--	--
Fluoranthene	--	--	--	--	--	--
Fluorene	--	--	--	--	--	--
Methylnaphthalene, 2-	--	--	--	--	--	--
Naphthalene	--	--	--	--	--	--
Phenanthrene	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--
Bis (2-ethylhexyl) phthalate	--	--	--	--	--	--
Butylbenzyl phthalate	--	--	--	--	--	--
Di-n-butyl phthalate	--	--	--	--	--	--
Di-n-octyl phthalate	--	--	--	--	--	--
Aldrin	--	--	--	--	--	--
Alpha-Endosulfan	--	--	--	--	--	--
Beta-Endosulfan	--	--	--	--	--	--
DDD, 4,4'-	--	--	--	--	--	--
DDE, 4,4'-	--	--	--	--	--	--
DDT, 4,4'-	--	--	--	--	--	--
Dieldrin	--	--	--	--	--	--
Endrin	--	--	--	--	--	--
Gamma-BHC (Lindane)	--	--	--	--	--	--
Heptachlor	--	--	--	--	--	--
Heptachlor epoxide	--	--	--	--	--	--
Methoxychlor	--	--	--	--	--	--
PCB 1254	--	--	--	--	--	--

Table 4-2 - continued

Chemical	Critical Effects	Subchronic RfC, mg/m³	Subchronic RfD, mg/kg/day	Chronic RfC, mg/m³	Chronic RfD, mg/kg/day	Confidence
PCB 1260	–	–	–	–	–	–
Dinitrotoluene, 2,4-	–	–	–	–	–	–
RDX	–	–	–	–	–	–

TABLE 4-3 SUMMARY OF CARCINOGENIC EFFECTS AND SLOPE FACTORS FOR CHEMICALS OF POTENTIAL CONCERN

Chemical	Weight of Evidence	Oral			Inhalation		
		Tumor Site/Type	Unit Risk[a], $(\mu g/L)^{-1}$	Slope Factor[b], $(mg/kg/day)^{-1}$	Tumor Site/Type	Unit Risk[a], $(\mu g/m^3)^{-1}$	Slope Factor[c], $(mg/kg/day)^{-1}$
Aldrin	B2	Liver	4.9E-04	1.7E+01	Liver	4.9E-03	1.7E+01
Arsenic	A	Skin and internal	5.0E-05	1.8E+00	Lung	4.3E-03	1.5E+01[d]
Benzo (a) anthracene	B2	Stomach	2.1E-04[e]	7.3E+00[e]	Lung	--	--
Benzo (a) pyrene	B2	Stomach	2.1E-04	7.3E+00	Lung	--	--
Benzo (b) fluoranthene	B2	Stomach	2.1E-04[e]	7.3E+00[e]	Lung	--	--
Benzo (k) fluoranthene	B2	Stomach	2.1E-04[e]	7.3E+00[e]	Lung	--	--
Beryllium	B2	Bone	1.2E-04	4.3E+00	Lung	2.4E-03	8.4E+00
Bis (2-ethylhexyl) phthalate	B2	Liver	4.0E-07	1.4E-02	--	--	--
Butylbenzyl phthalate	C	Leukemia	--	--	--	--	--
Cadmium (food,soil)	B1(inhalation)	--	--	--	Respiratory tract	1.8E-03	6.1E+00
Chromium (VI)	A	--	--	--	Lung	1.2E-02	4.2E+01
Chrysene	B2	Stomach	2.1E-04[e]	7.3E+00[e]	Lung	--	--
DDD, 4,4'-	B2	Liver	6.9E-06	2.4E-01	--	--	--
DDE, 4,4'-	B2	Liver	9.7E-06	3.4E-01	--	--	--
DDT, 4,4'-	B2	Liver	9.7E-06	3.4E-01	Liver	9.7E-05	3.4E-01
Dibenz (a,h) anthracene	B2	Stomach	2.1E-04[e]	7.3E+00[e]	Lung	--	--
Dieldrin	B2	Liver	4.6E-04	1.6E+01	Liver	4.6E-03	1.6E+01
Dinitrotoluene, 2,4-	B2	Kidney	1.9E-05[f]	6.8E-01[f]	--	--	--
Gamma-BHC (Lindane)	B2/C	Liver	3.7E-05[g]	1.3E+00[g]	--	--	--
Heptachlor	B2	Liver	1.3E-04	4.5E+00	Liver	1.3E-03	4.5E+00
Heptachlor epoxide	B2	Liver	2.6E-04	9.1E+00	Liver	2.6E-03	9.1E+00
Lead and Compounds	B2	Kidney	--	--	--	--	--
Nickel	A (inhalation)	--	--	--	Lung	2.4E-04[h]	8.4E-01[h]
PCB 1254	B2	Liver	2.2E-04	7.7E+00	--	--	--
PCB 1260	B2	Liver	2.2E-04	7.7E+00	--	--	--
RDX	C	Liver	3.1E-06	1.1E-01	--	--	--

TABLE 4-4 SUMMARY OF EXTRAPOLATED DERMAL TOXICITY VALUES FOR CHEMICALS OF POTENTIAL CONCERN

Chemical	Subchronic RfD	Chronic RfD	Slope Factor
Antimony	4.0E-05	4.0E-05	NA
Arsenic	2.9E-04	2.9E-04	1.8E+00
Barium	7.0E-03	7.0E-03	NA
Beryllium	2.5E-05	2.5E-05	8.6E+02
Cadmium (food,soil)	NA	2.5E-05	NA
Chromium (VI)	1.0E-03	2.5E-04	NA
Lead and Compounds	NA	NA	NA
Mercury, inorganic	6.0E-06	6.0E-06	NA
Nickel	1.0E-03	1.0E-03	NA
Silver	2.5E-04	2.5E-04	NA
Vanadium	7.0E-05	7.0E-05	NA
Cyanide (free)	2.0E-02	2.0E-02	NA
Nitrate, nitrate - nonspecific	1.0E-01	1.0E-01	NA
Acenaphthene	NA	NA	NA
Acenaphthylene	NA	NA	NA
Anthracene	NA	NA	NA
Benzo (a) anthracene	NA	NA	NA
Benzo (a) pyrene	NA	NA	NA
Benzo (b) fluoranthene	NA	NA	NA
Benzo (g,h,i) perylene	NA	NA	NA
Benzo (k) fluoranthene	NA	NA	NA
Chrysene	NA	NA	NA
Dibenz (a,h) anthracene	NA	NA	NA
Fluoranthene	NA	NA	NA
Fluorene	NA	NA	NA
Methylnaphthalene, 2-	NA	NA	NA
Naphthalene	NA	NA	NA
Phenanthrene	NA	NA	NA
Pyrene	NA	NA	NA
Bis (2-ethylhexyl) phthalate	2.0E-02	2.0E-02	1.4E-02
Butylbenzyl phthalate	2.0E+00	2.0E-01	NA
Di-n-butyl phthalate	8.5E-01	8.5E-02	NA
Di-n-octyl phthalate	2.0E-02	2.0E-02	NA
Aldrin	3.0E-05	3.0E-05	1.7E+01
Alpha-Endosulfan	2.0E-04	5.0E-05	NA
Beta-Endosulfan	2.0E-04	5.0E-05	NA
DDD, 4,4'-	NA	NA	2.4E-01
DDE, 4,4'-	NA	NA	3.4E-01
DDT, 4,4'-	5.0E-04	5.0E-04	3.4E-01
Dieldrin	5.0E-05	5.0E-05	1.6E+01

Table 4-4 - continued

Chemical	Subchronic RfD	Chronic RfD	Slope Factor
Endrin	3.0E-04	3.0E-04	NA
Gamma-BHC (Lindane)	3.0E-03	3.0E-04	1.3E+00
Heptachlor	5.0E-04	5.0E-04	4.5E+00
Heptachlor epoxide	1.3E-05	1.3E-05	9.1E+00
Methoxychlor	5.0E-03	5.0E-03	NA
PCB 1254	6.7E-05	6.7E-05	8.1E+00
PCB 1260	6.7E-05	6.7E-05	8.1E+00
Dinitrotoluene, 2,4-	2.0E-03	2.0E-03	6.8E-01
RDX	3.0E-03	3.0E-03	1.1E-01

TABLE 5-1 SUMMARY OF CARCINOGENIC RISKS TO POTENTIALLY EXPOSED POPULATIONS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Future Resident	Bldg. 39	Interior Residue	Oral	5E-05
	Bldg. 39	Interior Residue	Dermal	2E-05
	Bldg. 39	Indoor Air	Inhalation	1E-04
			Total:	2E-04
Future Comm. Worker	Bldg. 39	Interior Residue	Oral	1E-06
	Bldg. 39	Interior Residue	Dermal	8E-06
	Bldg. 39	Indoor Air	Inhalation	2E-05
			Total:	3E-05
Future Renov. Worker	Bldg. 39	Interior Residue	Oral	6E-08
	Bldg. 39	Indoor Air	Inhalation	2E-05
			Total:	2E-05
Future Resident	Bldg. 311	Interior Residue	Oral	8E-06
	Bldg. 311	Interior Residue	Dermal	9E-07
	Bldg. 311	Indoor Air	Inhalation	5E-05
			Total:	6E-05
Future Comm. Worker	Bldg. 311	Interior Residue	Oral	3E-07
	Bldg. 311	Interior Residue	Dermal	3E-07
	Bldg. 311	Indoor Air	Inhalation	1E-05
			Total:	1E-05
Future Renov. Worker	Bldg. 311	Interior Residue	Oral	1E-08
	Bldg. 311	Indoor Air	Inhalation	1E-05
			Total:	1E-05
Future Resident	Bldg. 312	Interior Residue	Oral	6E-05
	Bldg. 312	Interior Residue	Dermal	1E-04
	Bldg. 312	Indoor Air	Inhalation	7E-05
			Total:	2E-04

continued-

Table 5-1 - continued

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Cancer Risk
Future Comm. Worker	Bldg. 312	Interior Residue	Oral	2E-06
	Bldg. 312	Interior Residue	Dermal	4E-05
	Bldg. 312	Indoor Air	Inhalation	1E-05
			Total:	5E-05
Future Renov. Worker	Bldg. 312	Interior Residue	Oral	9E-08
	Bldg. 312	Indoor Air	Inhalation	1E-05
			Total:	1E-05
Future Resident	Bldg. 37	Interior Residue	Oral	1E-05
	Bldg. 37	Interior Residue	Dermal	2E-06
	Bldg. 37	Indoor Air	Inhalation	2E-04
			Total:	2E-04
Future Comm. Worker	Bldg. 37	Interior Residue	Oral	3E-07
	Bldg. 37	Interior Residue	Dermal	7E-07
	Bldg. 37	Indoor Air	Inhalation	4E-05
			Total:	4E-05
Future Renov. Worker	Bldg. 37	Interior Residue	Oral	1E-08
	Bldg. 37	Indoor Air	Inhalation	4E-05
			Total:	4E-05
Future Resident	Bldg. 313	Interior Residue	Oral	3E-05
	Bldg. 313	Interior Residue	Dermal	1E-05
	Bldg. 313	Indoor Air	Inhalation	2E-05
			Total:	6E-05
Future Comm. Worker	Bldg. 313	Interior Residue	Oral	9E-07
	Bldg. 313	Interior Residue	Dermal	4E-06
	Bldg. 313	Indoor Air	Inhalation	7E-06
			Total:	1E-05
Future Renov. Worker	Bldg. 313	Interior Residue	Oral	3E-08
	Bldg. 313	Indoor Air	Inhalation	5E-06
			Total:	5E-06

TABLE 5-2 SUMMARY OF NONCARCINOGENIC SUBCHRONIC HAZARD INDICES FOR POTENTIALLY EXPOSED POPULATIONS

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Subchronic Hazard Index
Future Resident	Bldg. 39	Interior Residue	Oral	9E-01
	Bldg. 39	Interior Residue	Dermal	1E-01
	Bldg. 39	Indoor Air	Inhalation	2E+01
			Total:	2E+01
Future Renov. Worker	Bldg. 39	Interior Residue	Oral	1E-02
	Bldg. 39	Indoor Air	Inhalation	3E+01
			Total:	3E+01
Future Resident	Bldg. 311	Interior Residue	Oral	3E-01
	Bldg. 311	Interior Residue	Dermal	1E-02
	Bldg. 311	Indoor Air	Inhalation	1E+01
			Total:	1E+01
Future Renov. Worker	Bldg. 311	Interior Residue	Oral	3E-03
	Bldg. 311	Indoor Air	Inhalation	1E+01
			Total:	1E+01
Future Resident	Bldg. 312	Interior Residue	Oral	3E-01
	Bldg. 312	Interior Residue	Dermal	3E-02
	Bldg. 312	Indoor Air	Inhalation	9E+00
			Total:	9E+00
Future Renov. Worker	Bldg. 312	Interior Residue	Oral	3E-03
	Bldg. 312	Indoor Air	Inhalation	1E+01
			Total:	1E+01
Future Resident	Bldg. 37	Interior Residue	Oral	3E-01
	Bldg. 37	Interior Residue	Dermal	2E-02
	Bldg. 37	Indoor Air	Inhalation	4E+01
			Total:	4E+01

continued-

Table 5-2 - continued

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Subchronic Hazard Index
Future Renov. Worker	Bldg. 37	Interior Residue	Oral	3E-03
	Bldg. 37	Indoor Air	Inhalation	5E+01
			Total:	5E+01
Future Resident	Bldg. 313	Interior Residue	Oral	5E-01
	Bldg. 313	Interior Residue	Dermal	7E-02
	Bldg. 313	Indoor Air	Inhalation	5E+00
			Total:	6E+00
Future Renov. Worker	Bldg. 313	Interior Residue	Oral	5E-03
	Bldg. 313	Indoor Air	Inhalation	7E+00
			Total:	7E+00

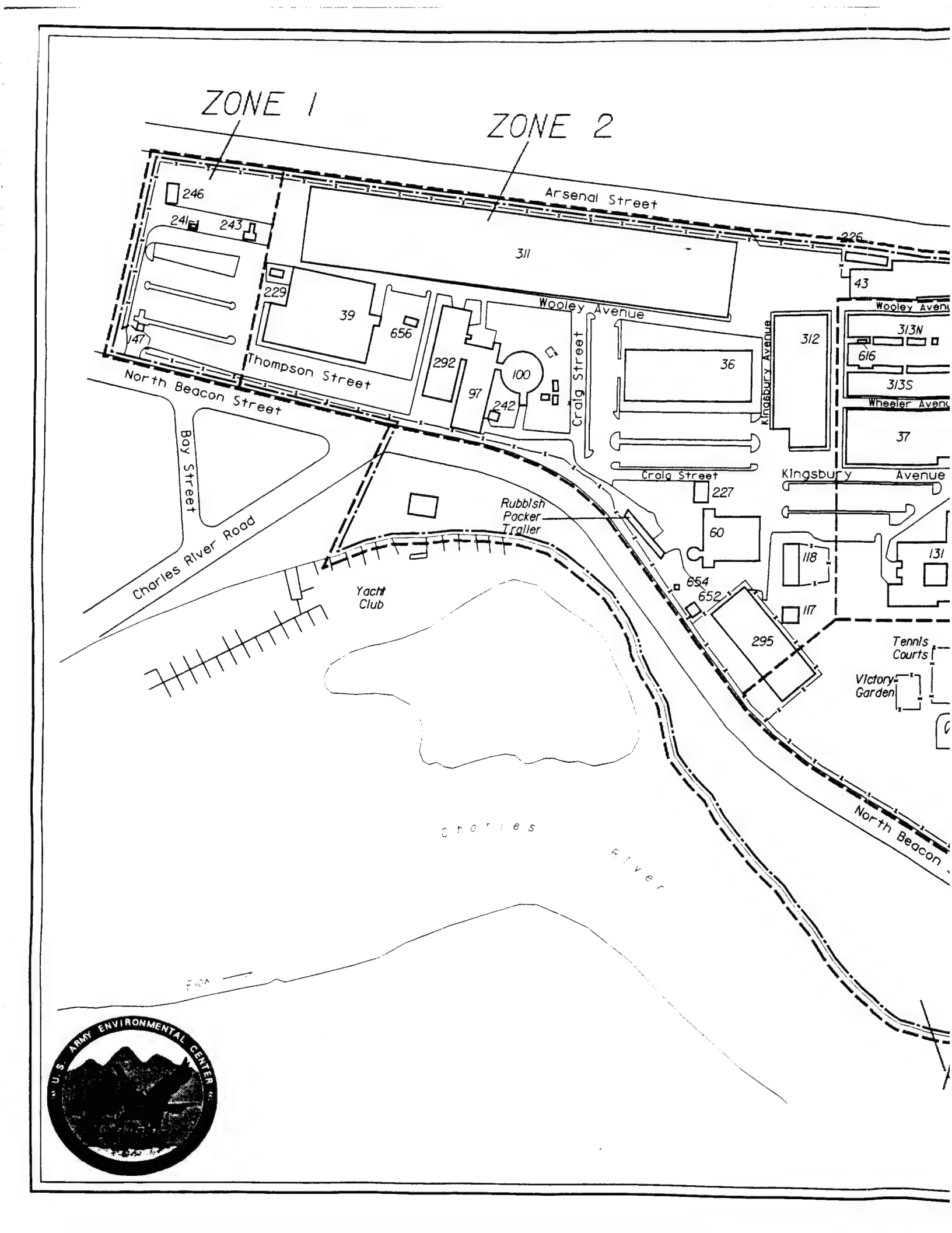
TABLE 5-3 SUMMARY OF NONCARCINOGENIC CHRONIC HAZARD INDICES FOR POTENTIALY EXPOSED POPULATIONS

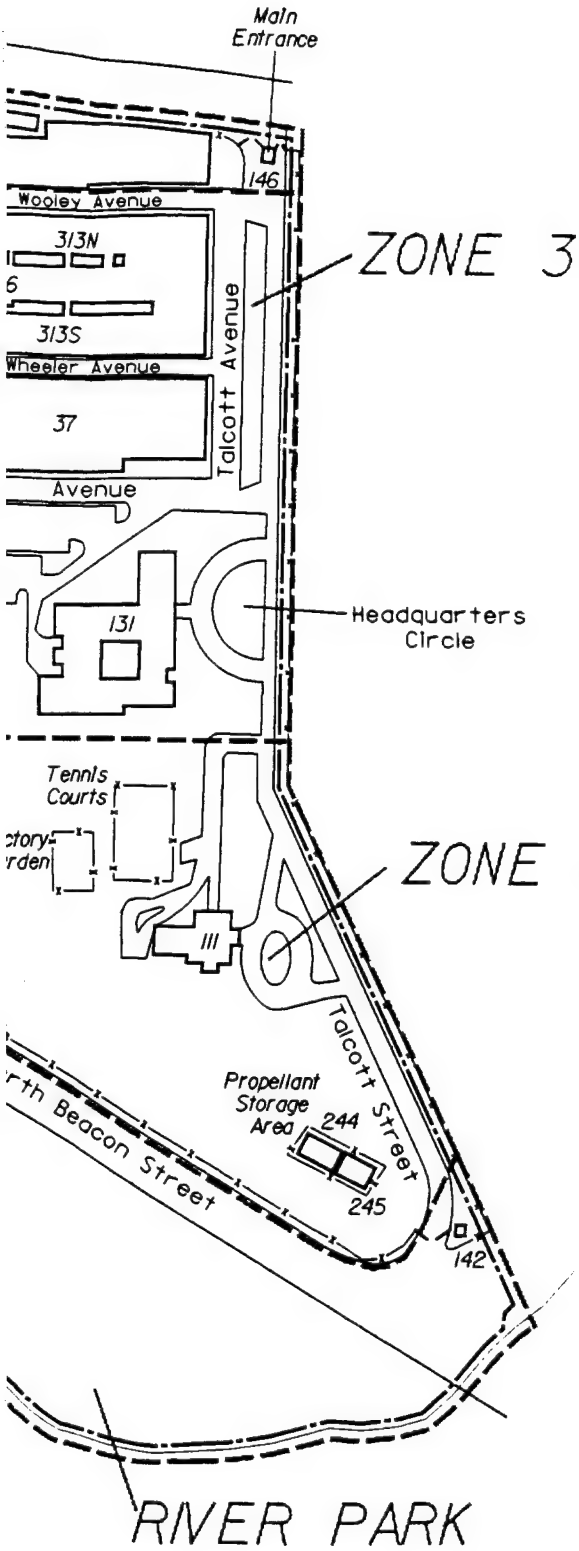
Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Chronic Hazard Index
Future Resident	Bldg. 39	Interior Residue	Oral	7E-01
	Bldg. 39	Interior Residue	Dermal	2E-01
	Bldg. 39	Indoor Air	Inhalation	6E-02
			Total:	1E+00
Future Comm. Worker	Bldg. 39	Interior Residue	Oral	1E-02
	Bldg. 39	Interior Residue	Dermal	1E-01
	Bldg. 39	Indoor Air	Inhalation	7E-03
			Total:	1E-01
Future Resident	Bldg. 311	Interior Residue	Oral	2E-01
	Bldg. 311	Interior Residue	Dermal	8E-02
	Bldg. 311	Indoor Air	Inhalation	7E-02
			Total:	4E-01
Future Comm. Worker	Bldg. 311	Interior Residue	Oral	4E-03
	Bldg. 311	Interior Residue	Dermal	4E-02
	Bldg. 311	Indoor Air	Inhalation	8E-03
			Total:	5E-02
Future Resident	Bldg. 312	Interior Residue	Oral	8E-01
	Bldg. 312	Interior Residue	Dermal	9E-01
	Bldg. 312	Indoor Air	Inhalation	4E-02
			Total:	2E+00
Future Comm. Worker	Bldg. 312	Interior Residue	Oral	1E-02
	Bldg. 312	Interior Residue	Dermal	4E-01
	Bldg. 312	Indoor Air	Inhalation	5E-03
			Total:	4E-01
Future Resident	Bldg. 37	Interior Residue	Oral	4E-01
	Bldg. 37	Interior Residue	Dermal	7E-02
	Bldg. 37	Indoor Air	Inhalation	1E-01
			Total:	6E-01

continued-

Table 5-3 - continued

Exposed Population	Exposure Point	Exposure Medium	Exposure Route	Chronic Hazard Index
Future	Bldg. 37	Interior Residue	Oral	6E-03
Comm. Worker	Bldg. 37	Interior Residue	Dermal	3E-02
	Bldg. 37	Indoor Air	Inhalation	2E-02
			Total:	6E-02
Future Resident	Bldg. 313	Interior Residue	Oral	3E-01
	Bldg. 313	Interior Residue	Dermal	8E-02
	Bldg. 313	Indoor Air	Inhalation	3E-02
			Total:	4E-01
Future	Bldg. 313	Interior Residue	Oral	6E-03
Comm. Worker	Bldg. 313	Interior Residue	Dermal	3E-02
	Bldg. 313	Indoor Air	Inhalation	4E-03
			Total:	4E-02


ZONE 1
ZONE 2
Arsenal Street
246
241
243
311
226
43
229
39
656
Wooley Avenue
147
Thompson Street
292
100
97
242
Craig Street
312
36
Kingsbury Avenue
313N
616
313S
Wheeler Avenue
37
North Beacon Street
Boy Street
Craig Street
Kingsbury Avenue
227
Rubbish Packer Trailer
60
118
131
Charles River Road
654
652
Yacht Club
117
295
Tennis Courts
Victory Garden
North Beacon
Charles River
FLOW
U.S. ARMY ENVIRONMENTAL CENTER



Army Materials
Technology Laboratory
Watertown, MA

Figure 3–1
Preferred Reuse Zones

ZONE 1	Commercial
ZONE 2	Commercial
ZONE 3	Residential
ZONE 4/ RIVER PARK	Open Space/Public Use
----	Zone Boundary

N

Scale
0 meters 150
0 feet 500

6–OCT–1995

WESTON

APPENDIX A

DETAILED EXPOSURE AND RISK CALCULATIONS

USER'S GUIDE

The following pages provide detailed documentation of the exposure and risk calculations performed at this site. This information will be helpful for those who wish to review these calculations in detail.

Data Input

Exposure and risk calculations are performed by providing data to the computer in three parts or worksheets. The first worksheet is named "POPSUM." This is where exposure scenarios to be evaluated are listed, grouped by population (populations are described in Section 3 of this report). This is also where all HIF terms developed in Section 3 are entered. Since not all of the populations to be evaluated fit into one POPSUM worksheet, two POPSUMs are created. Buildings in Zone 2 are included in the first; buildings in Zone 3 are included in the second.

The second worksheet is named "CTV." This worksheet contains the names of all chemicals of concern and all available values for the following parameters:

RfD_s = subchronic reference dose (route-specific, mg/kg-day)
RfD_c = chronic reference dose (route-specific, mg/kg-day)
SF = slope factor (route-specific, $(mg/kg\text{-}day)^{-1}$)
AF_o = oral absorption fraction (unitless)
ABS = absorption fraction from soil (unitless)
P = dermal permeability (K_p) constant for water (cm/hr)

The third worksheet is a series of exposure point concentration (EPC) tables that record the concentrations of the chemicals of concern at each location. Since concentrations may change over time, three columns exist for each medium: subchronic (C_s), chronic (C_c) and lifetime (C_l) average values. If a chemical's concentration is assumed to remain constant over time, all of these values will be equal. These tables repeat the values already documented in Section 3, so the EPC worksheets are not repeated here.

Exposure and Risk Calculations

Exposure and risk calculations for exposure scenarios and populations listed in "POPSUM" are performed in a series of worksheets (called "WS1," "WS2," etc.), grouped by population (POP1, POP2, etc., where POP1 = population 1 on the POPSUM worksheet). Each exposure and risk calculation worksheet is specific for a given population, exposure point, exposure medium and exposure route. All these terms are listed at the top of the page, along with the appropriate HIF values (copied from the POPSUM worksheet). Exposure and risk calculations are then presented in the body of the worksheet, grouped into three separate

sections: subchronic, chronic and lifetime. Within each section, the first data column is for the exposure point concentration, copied from the appropriate EPC table. The next column is for the HIF values:

- HIF_s = subchronic human intake factor
- HIF_c = chronic human intake factor
- HIF_l = lifetime (carcinogenic) human intake factor

Since the HIF value does not depend on chemical, the same value appears in all rows of the column. The next column is used for the chemical-specific ABS or P terms needed in any dermal exposure scenarios. Since these terms are not needed except in dermal scenarios, a value of 1 appears in this column for all oral or inhalation scenarios. The next column is the dose (intake), calculated by multiplying the exposure point concentration by the HIF. The next column is the appropriate chemical-, route- and duration-specific CTV term (RfD_s, RfD_c and SF for subchronic, chronic and lifetime exposures, respectively). These are copied from the CTV worksheet mentioned above. The last column in each block is the risk estimate. For subchronic and chronic exposures, this is given by the dose (DI) divided by the RfD, and is termed the Hazard Quotient (HQ). For lifetime exposures, the value is the excess cancer risk, calculated from the equation

$$RISK = 1 - e^{-(DI_l \cdot SF)}$$

Summary Sheets

After all exposure scenarios that apply to a given population are evaluated, summary tables are prepared that tabulate the pathway-specific subchronic, chronic and lifetime dose and risk estimates for the population. These are copied from the preceding exposure and risk calculation worksheets. The intakes or doses are shown in the block on the left, and the risks or hazard quotients are shown in the block on the right. In each block, each column represents one exposure scenario (pathway). This is identified by the labels heading the column. Finally, risks are summed across chemicals and across pathways. These sums are shown just below the individual columns of risk estimates.

Arrangement of This Appendix

PAGE

RANGE NAME: CTV

LIST OF CHEMICALS OF CONCERN
WITH CTVs AND OTHER CHEMICAL-SPECIFIC DATA

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		ORAL				INHALATION			DERMAL(a)				
NO.	CHEMICAL NAME	RfDo	RfDc	SF	AFo	RfDo	RfDc	SF	RfDo	RfDc	SF	ABS	P
1	Antimony	4.0E-04	4.0E-04	NA	1.0E-01	NA	NA	NA	4.0E-05	4.0E-05	NA	1.0E-03	1.00E-03
2	Arsenic	3.0E-04	3.0E-04	1.8E+00	9.8E-01	NA	NA	1.5E+01	2.9E-04	2.9E-04	1.8E+00	1.0E-03	1.00E-03
3	Barium	7.0E-02	7.0E-02	NA	1.0E-01	1.4E-03	1.4E-04	NA	7.0E-03	7.0E-03	NA	1.0E-03	1.00E-03
4	Beryllium	5.0E-03	5.0E-03	4.3E+00	5.0E-03	NA	NA	8.4E+00	2.5E-05	2.5E-05	8.6E+02	1.0E-03	1.00E-03
5	Cadmium (food	NA	1.0E-03	NA	2.5E-02	NA	NA	6.1E+00	NA	2.5E-05	NA	1.0E-02	NA
6	Chromium (VI)	2.0E-02	5.0E-03	NA	5.0E-02	1.1E-06	NA	4.2E+01	1.0E-03	2.5E-04	NA	1.0E-03	1.00E-03
7	Lead and Compo	NA	NA	NA	2.0E-01	NA	NA	NA	NA	NA	NA	6.0E-03	1.00E-03
8	Mercury, inorg	3.0E-04	3.0E-04	NA	2.0E-02	NA	NA	NA	6.0E-06	6.0E-06	NA	1.0E-03	1.00E-03
9	Nickel	2.0E-02	2.0E-02	NA	5.0E-02	NA	NA	8.4E-01	1.0E-03	1.0E-03	NA	NA	NA
10	Silver	5.0E-03	5.0E-03	NA	5.0E-02	NA	NA	NA	2.5E-04	2.5E-04	NA	1.0E-02	1.00E-03
11	Vanadium	7.0E-03	7.0E-03	NA	1.0E-02	NA	NA	NA	7.0E-05	7.0E-05	NA	1.0E-03	1.00E-03
12	Cyanide (free)	2.0E-02	2.0E-02	NA	1.0E+00	2.9E-04	2.0E-03	NA	2.0E-02	2.0E-02	NA	3.0E-02	1.00E-03
13	Nitrate, nitra	1.0E-01	1.0E-01	NA	1.0E+00	NA	NA	NA	1.0E-01	1.0E-01	NA	1.0E-03	1.00E-03
14	Acenaphthene	6.00E-01	6.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.52E-01
15	Acenaphthylene	4.0E-02	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.69E-01
16	Anthracene	3.0E+00	3.0E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.26E-01
17	Benzo (a) anth	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	8.10E-01
18	Benzo (a) pyre	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	1.20E+00
19	Benzo (b) flue	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	1.20E+00
20	Benzo (g,h,i)	4.0E-02	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.65E+00
21	Benzo (k) flue	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	1.11E+00
22	Chrysene	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	8.10E-01
23	Dibenz (a,h) a	4.0E-02	4.0E-02	7.3E+00	NA	NA	NA	NA	NA	NA	NA	NA	2.70E+00
24	Fluoranthene	4.0E-01	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.60E-01
25	Fluorene	4.0E-01	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.58E-01
26	Methylnaphthal	4.0E-02	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.15E-01
27	Naphthalene	4.0E-02	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.90E-02
28	Phenanthrene	3.0E-01	3.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.30E-01
29	Pyrene	3.0E-01	3.0E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.26E-01
30	Bis (2-ethylhe	2.0E-02	2.0E-02	1.4E-02	1.0E+00	NA	NA	NA	2.0E-02	2.0E-02	1.4E-02	NA	3.30E-02
31	Butylbenzyl ph	2.0E+00	2.0E-01	NA	1.0E+00	NA	NA	NA	2.0E+00	2.0E-01	NA	NA	2.37E-05
32	Di-n-butyl pht	1.0E+00	1.0E-01	NA	8.5E-01	NA	NA	NA	8.5E-01	8.5E-02	NA	NA	3.30E-02
33	Di-n-octyl pht	2.0E-02	2.0E-02	NA	1.0E+00	NA	NA	NA	2.0E-02	2.0E-02	NA	NA	2.67E+01
34	Aldrin	3.0E-05	3.0E-05	1.7E+01	1.0E+00	NA	NA	1.7E+01	3.0E-05	3.0E-05	1.7E+01	1.0E-02	1.60E-03
35	Alpha-Endosulf	2.0E-04	5.0E-05	NA	1.0E+00	NA	NA	NA	2.0E-04	5.0E-05	NA	1.0E-02	4.00E-03
36	Beta-Endosulfa	2.0E-04	5.0E-05	NA	1.0E+00	NA	NA	NA	2.0E-04	5.0E-05	NA	1.0E-02	2.33E-03
37	DDD, 4,4'-	NA	NA	2.4E-01	1.0E+00	NA	NA	NA	NA	NA	2.4E-01	1.0E-02	2.80E-01
38	DDE, 4,4'-	NA	NA	3.4E-01	1.0E+00	NA	NA	NA	NA	NA	3.4E-01	1.0E-02	2.40E-01
39	DDT, 4,4'-	5.0E-04	5.0E-04	3.4E-01	1.0E+00	NA	NA	3.4E-01	5.0E-04	5.0E-04	3.4E-01	1.0E-02	4.30E-01
40	Dieldrin	5.0E-05	5.0E-05	1.6E+01	1.0E+00	NA	NA	1.6E+01	5.0E-05	5.0E-05	1.6E+01	1.0E-02	1.60E-02
41	Endrin	3.0E-04	3.0E-04	NA	1.0E+00	NA	NA	NA	3.0E-04	3.0E-04	NA	1.0E-02	1.60E-02
42	Gamma-BHC (Lin	3.0E-03	3.0E-04	1.3E+00	1.0E+00	NA	NA	NA	3.0E-03	3.0E-04	1.3E+00	1.0E-02	1.40E-01
43	Heptachlor	5.0E-04	5.0E-04	4.5E+00	1.0E+00	NA	NA	4.5E+00	5.0E-04	5.0E-04	4.5E+00	1.0E-02	1.10E-02
44	Heptachlor epo	1.3E-05	1.3E-05	9.1E+00	1.0E+00	NA	NA	9.1E+00	1.3E-05	1.3E-05	9.1E+00	1.0E-02	6.67E-04
45	Methoxychlor	5.0E-03	5.0E-03	NA	1.0E+00	NA	NA	NA	5.0E-03	5.0E-03	NA	NA	1.67E-02
46	PCB 1254	7.0E-05	7.0E-05	7.7E+00	9.5E-01	NA	NA	NA	6.7E-05	6.7E-05	8.1E+00	6.0E-02	3.69E-01
47	PCB 1260	7.0E-05	7.0E-05	7.7E+00	9.5E-01	NA	NA	NA	6.7E-05	6.7E-05	8.1E+00	6.0E-02	3.69E-01
48	Dinitrotoluene	2.0E-03	2.0E-03	6.8E-01	1.0E+00	NA	NA	NA	2.0E-03	2.0E-03	6.8E-01	1.0E-02	3.80E-03
49	RDX	3.0E-03	3.0E-03	1.1E-01	1.0E+00	NA	NA	NA	3.0E-03	3.0E-03	1.1E-01	1.0E-02	3.50E-04

RANGE NAME: POPSUM

EXPOSURE SCENARIOS EVALUATED
(GROUPED BY POPULATION)

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

POPULATION 1 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	WORKSHEET NAME
1	FUTURE	RESIDENT 39	BLDG 39	INTERIOR RESID	ORAL	9.13E-05	5.71E-05	9.72E-06	WS1
2			BLDG 39	INTERIOR RESID	DERMAL	2.67E-04	2.32E-04	9.19E-05	WS2
3			BLDG 39	INDOOR AIR	INHALATION	2.74E-01	1.71E-01	2.91E-02	WS3
4									WS4
5									WS5
6									WS6

POPULATION 2 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	COMM. WORKER 39	BLDG 39	INTERIOR RESID	ORAL		9.78E-07	3.49E-07	WS1
2			BLDG 39	INTERIOR RESID	DERMAL		9.26E-05	3.31E-05	WS2
3			BLDG 39	INDOOR AIR	INHALATION		1.88E-02	6.71E-03	WS3
4									WS4
5									WS5
6									WS6

POPULATION 3 — NO. OF SCENARIOS = 2

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	RENOV. WORKER 39	BLDG 39	INTERIOR RESID	ORAL	9.78E-07		1.40E-08	WS1
2			BLDG 39	INDOOR AIR REN	INHALATION	3.91E-02		5.59E-04	WS2
3									WS3
4									WS4
5									WS5
6									WS6

POPULATION 4 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	RESIDENT 311	BLDG 311	INTERIOR RESID	ORAL	9.13E-05	5.71E-05	9.72E-06	WS1
2			BLDG 311	INTERIOR RESID	DERMAL	2.67E-04	2.32E-04	9.19E-05	WS2
3			BLDG 311	INDOOR AIR	INHALATION	2.74E-01	1.71E-01	2.91E-02	WS3
4									WS4
5									WS5
6									WS6

POPULATION 5 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	COMM. WORKER 311	BLDG 311	INTERIOR RESID	ORAL		9.78E-07	3.49E-07	WS1
2			BLDG 311	INTERIOR RESID	DERMAL		9.26E-05	3.31E-05	WS2
3			BLDG 311	INDOOR AIR	INHALATION		1.88E-02	6.71E-03	WS3
4									WS4
5									WS5
6									WS6

POPULATION 6 NO. OF SCENARIOS = 2

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFa	HIFC	HIF1	RANGE NAME
1	FUTURE	RENOV. WORKER 311	BLDG 311	INTERIOR RESID	ORAL	9.78E-07		1.40E-08	WS1
2			BLDG 311	INDOOR AIR REN	INHALATION	3.91E-02		5.59E-04	WS2
3									WS3
4									WS4
5									WS5
6									WS6

POPULATION 7 NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFa	HIFC	HIF1	RANGE NAME
1	FUTURE	RESIDENT 312	BLDG 312	INTERIOR RESID	ORAL	9.13E-05	5.71E-05	9.72E-06	WS1
2			BLDG 312	INTERIOR RESID	DERMAL	2.67E-04	2.32E-04	9.19E-05	WS2
3			BLDG 312	INDOOR AIR	INHALATION	2.74E-01	1.71E-01	2.91E-02	WS3
4									WS4
5									WS5
6									WS6

POPULATION 8 NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFa	HIFC	HIF1	RANGE NAME
1	FUTURE	COMM. WORKER 312	BLDG 312	INTERIOR RESID	ORAL		9.78E-07	3.49E-07	WS1
2			BLDG 312	INTERIOR RESID	DERMAL		9.26E-05	3.31E-05	WS2
3			BLDG 312	INDOOR AIR	INHALATION		1.88E-02	6.71E-03	WS3
4									WS4
5									WS5
6									WS6

POPULATION 9 NO. OF SCENARIOS = 2

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFa	HIFC	HIF1	RANGE NAME
1	FUTURE	RENOV. WORKER 312	BLDG 312	INTERIOR RESID	ORAL	9.78E-07		1.40E-08	WS1
2			BLDG 312	INDOOR AIR REN	INHALATION	3.91E-02		5.59E-04	WS2
3									WS3
4									WS4
5									WS5
6									WS6

RANGE NAME: EPC1

EXPOSURE POINT CONCENTRATIONS

EXPOSURE POINT: BLDG 39

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		MEDIUM 1 INTERIOR RESIDUE			MEDIUM 2 INDOOR AIR			MEDIUM 3 INDOOR AIR REN			MEDIUM 4 0			MEDIUM 5 0		
		Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1
	CHEMICAL NAME	11S	11C	11L	12S	12C	12L	13S	13C	13L	14S	14C	14L	15S	15C	15L
1	Antimony	2.6E-01	2.6E-01	2.6E-01	2.6E-06	2.6E-06	2.6E-06	2.6E-05	2.6E-05	2.6E-05						
2	Arsenic	3.0E-01	3.0E-01	3.0E-01	3.0E-06	3.0E-06	3.0E-06	3.0E-05	3.0E-05	3.0E-05						
3	Barium	5.0E+00	5.0E+00	5.0E+00	5.0E-05	5.0E-05	5.0E-05	5.0E-04	5.0E-04	5.0E-04						
4	Beryllium	8.8E-04	8.8E-04	8.8E-04	8.8E-09	8.8E-09	8.8E-09	8.8E-08	8.8E-08	8.8E-08						
5	Cadmium (food	1.3E+00	1.3E+00	1.3E+00	1.3E-05	1.3E-05	1.3E-05	1.3E-04	1.3E-04	1.3E-04						
6	Chromium (VI)	7.5E+00	7.5E+00	7.5E+00	7.5E-05	7.5E-05	7.5E-05	7.5E-04	7.5E-04	7.5E-04						
7	Lead and Compo	1.1E+01	1.1E+01	1.1E+01	1.1E-04	1.1E-04	1.1E-04	1.1E-03	1.1E-03	1.1E-03						
8	Mercury, inorg	1.3E-01	1.3E-01	1.3E-01	1.3E-06	1.3E-06	1.3E-06	1.3E-05	1.3E-05	1.3E-05						
9	Nickel	7.0E+00	7.0E+00	7.0E+00	7.0E-05	7.0E-05	7.0E-05	7.0E-04	7.0E-04	7.0E-04						
10	Silver	2.0E-01	2.0E-01	2.0E-01	2.0E-06	2.0E-06	2.0E-06	2.0E-05	2.0E-05	2.0E-05						
11	Vanadium	3.8E-01	3.8E-01	3.8E-01	3.8E-06	3.8E-06	3.8E-06	3.8E-05	3.8E-05	3.8E-05						
12	Cyanide (free)	2.1E-01	2.1E-01	2.1E-01	2.1E-06	2.1E-06	2.1E-06	2.1E-05	2.1E-05	2.1E-05						
13	Nitrate, nitra	1.5E+00	1.5E+00	1.5E+00	1.5E-05	1.5E-05	1.5E-05	1.5E-04	1.5E-04	1.5E-04						
14	Acenaphthene	2.0E-04	2.0E-04	2.0E-04	2.0E-09	2.0E-09	2.0E-09	2.0E-08	2.0E-08	2.0E-08						
15	Acenaphthylene	1.8E-03	1.8E-03	1.8E-03	1.8E-08	1.8E-08	1.8E-08	1.8E-07	1.8E-07	1.8E-07						
16	Anthracene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
17	Benzo (a) anth	2.4E-02	2.4E-02	2.4E-02	2.4E-07	2.4E-07	2.4E-07	2.4E-06	2.4E-06	2.4E-06						
18	Benzo (a) pyre	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
19	Benzo (b) fluo	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
20	Benzo (g,h,i)	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
21	Benzo (k) fluo	7.6E-04	7.6E-04	7.6E-04	7.6E-09	7.6E-09	7.6E-09	7.6E-08	7.6E-08	7.6E-08						
22	Chrysene	9.9E-03	9.9E-03	9.9E-03	9.9E-08	9.9E-08	9.9E-08	9.9E-07	9.9E-07	9.9E-07						
23	Dibenz (a,h) a	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
24	Fluoranthene	1.6E-02	1.6E-02	1.6E-02	1.6E-07	1.6E-07	1.6E-07	1.6E-06	1.6E-06	1.6E-06						
25	Fluorene	1.1E-03	1.1E-03	1.1E-03	1.1E-08	1.1E-08	1.1E-08	1.1E-07	1.1E-07	1.1E-07						
26	Methylnaphthal	1.8E-03	1.8E-03	1.8E-03	1.8E-08	1.8E-08	1.8E-08	1.8E-07	1.8E-07	1.8E-07						
27	Naphthalene	4.4E-03	4.4E-03	4.4E-03	4.4E-08	4.4E-08	4.4E-08	4.4E-07	4.4E-07	4.4E-07						
28	Phenanthrene	3.0E-02	3.0E-02	3.0E-02	3.0E-07	3.0E-07	3.0E-07	3.0E-06	3.0E-06	3.0E-06						
29	Pyrene	2.8E-02	2.8E-02	2.8E-02	2.8E-07	2.8E-07	2.8E-07	2.8E-06	2.8E-06	2.8E-06						
30	Bis (2-ethylhe	2.1E+00	2.1E+00	2.1E+00	2.1E-05	2.1E-05	2.1E-05	2.1E-04	2.1E-04	2.1E-04						
31	Butylbenzyl ph	1.7E+00	1.7E+00	1.7E+00	1.7E-05	1.7E-05	1.7E-05	1.7E-04	1.7E-04	1.7E-04						
32	Di-n-butyl pht	1.3E+00	1.3E+00	1.3E+00	1.3E-05	1.3E-05	1.3E-05	1.3E-04	1.3E-04	1.3E-04						
33	Di-n-octyl pht	1.1E-01	1.1E-01	1.1E-01	1.1E-06	1.1E-06	1.1E-06	1.1E-05	1.1E-05	1.1E-05						
34	Aldrin	1.9E-03	1.9E-03	1.9E-03	1.9E-08	1.9E-08	1.9E-08	1.9E-07	1.9E-07	1.9E-07						
35	Alpha-Endosulf	1.1E-04	1.1E-04	1.1E-04	1.1E-09	1.1E-09	1.1E-09	1.1E-08	1.1E-08	1.1E-08						
36	Beta-Endosulfa	6.5E-05	6.5E-05	6.5E-05	6.5E-10	6.5E-10	6.5E-10	6.5E-09	6.5E-09	6.5E-09						
37	DDD, 4,4'-	3.7E-04	3.7E-04	3.7E-04	3.7E-09	3.7E-09	3.7E-09	3.7E-08	3.7E-08	3.7E-08						
38	DDE, 4,4'-	6.1E-04	6.1E-04	6.1E-04	6.1E-09	6.1E-09	6.1E-09	6.1E-08	6.1E-08	6.1E-08						
39	DDT, 4,4'-	2.9E-03	2.9E-03	2.9E-03	2.9E-08	2.9E-08	2.9E-08	2.9E-07	2.9E-07	2.9E-07						
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
41	Endrin	9.1E-04	9.1E-04	9.1E-04	9.1E-09	9.1E-09	9.1E-09	9.1E-08	9.1E-08	9.1E-08						
42	Gamma-BHC (Lin	1.5E-04	1.5E-04	1.5E-04	1.5E-09	1.5E-09	1.5E-09	1.5E-08	1.5E-08	1.5E-08						
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
44	Heptachlor epo	9.6E-05	9.6E-05	9.6E-05	9.6E-10	9.6E-10	9.6E-10	9.6E-09	9.6E-09	9.6E-09						
45	Methoxychlor	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
46	PCB 1254	4.7E-01	4.7E-01	4.7E-01	4.7E-06	4.7E-06	4.7E-06	4.7E-05	4.7E-05	4.7E-05						
47	PCB 1260	5.8E-03	5.8E-03	5.8E-03	5.8E-08	5.8E-08	5.8E-08	5.8E-07	5.8E-07	5.8E-07						
48	Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
49	RDX	4.5E-02	4.5E-02	4.5E-02	4.5E-07	4.5E-07	4.5E-07	4.5E-06	4.5E-06	4.5E-06						

RANGE NAME: EPC2

EXPOSURE POINT CONCENTRATIONS

EXPOSURE POINT: BLDG 311

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		MEDIUM 1 INTERIOR RESIDUE			MEDIUM 2 INDOOR AIR			MEDIUM 3 INDOOR AIR REN			MEDIUM 4 0			MEDIUM 5 0		
		Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl
	CHEMICAL NAME	21S	21C	21L	22S	22C	22L	23S	23C	23L	24S	24C	24L	25S	25C	25L
1	Antimony	2.4E-01	2.4E-01	2.4E-01	2.4E-06	2.4E-06	2.4E-06	2.4E-05	2.4E-05	2.4E-05						
2	Arsenic	4.1E-02	4.1E-02	4.1E-02	4.1E-07	4.1E-07	4.1E-07	4.1E-06	4.1E-06	4.1E-06						
3	Barium	5.6E+00	5.6E+00	5.6E+00	5.6E-05	5.6E-05	5.6E-05	5.6E-04	5.6E-04	5.6E-04						
4	Beryllium	4.5E-03	4.5E-03	4.5E-03	4.5E-08	4.5E-08	4.5E-08	4.5E-07	4.5E-07	4.5E-07						
5	Cadmium (food	7.7E-01	7.7E-01	7.7E-01	7.7E-06	7.7E-06	7.7E-06	7.7E-05	7.7E-05	7.7E-05						
6	Chromium (VI)	4.1E+00	4.1E+00	4.1E+00	4.1E-05	4.1E-05	4.1E-05	4.1E-04	4.1E-04	4.1E-04						
7	Lead and Compo	1.7E+01	1.7E+01	1.7E+01	1.7E-04	1.7E-04	1.7E-04	1.7E-03	1.7E-03	1.7E-03						
8	Mercury, inorg	2.0E-02	2.0E-02	2.0E-02	2.0E-07	2.0E-07	2.0E-07	2.0E-06	2.0E-06	2.0E-06						
9	Nickel	3.4E+00	3.4E+00	3.4E+00	3.4E-05	3.4E-05	3.4E-05	3.4E-04	3.4E-04	3.4E-04						
10	Silver	4.0E-02	4.0E-02	4.0E-02	4.0E-07	4.0E-07	4.0E-07	4.0E-06	4.0E-06	4.0E-06						
11	Vanadium	1.1E+00	1.1E+00	1.1E+00	1.1E-05	1.1E-05	1.1E-05	1.1E-04	1.1E-04	1.1E-04						
12	Cyanide (free)	3.0E-02	3.0E-02	3.0E-02	3.0E-07	3.0E-07	3.0E-07	3.0E-06	3.0E-06	3.0E-06						
13	Nitrate, nitra	1.7E+01	1.7E+01	1.7E+01	1.7E-04	1.7E-04	1.7E-04	1.7E-03	1.7E-03	1.7E-03						
14	Acenaphthene	2.4E-03	2.4E-03	2.4E-03	2.4E-08	2.4E-08	2.4E-08	2.4E-07	2.4E-07	2.4E-07						
15	Acenaphthylene	2.0E-03	2.0E-03	2.0E-03	2.0E-08	2.0E-08	2.0E-08	2.0E-07	2.0E-07	2.0E-07						
16	Anthracene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
17	Benzo (a) anth	2.7E-02	2.7E-02	2.7E-02	2.7E-07	2.7E-07	2.7E-07	2.7E-06	2.7E-06	2.7E-06						
18	Benzo (a) pyre	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
19	Benzo (b) fluo	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
20	Benzo (g,h,i)	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
21	Benzo (k) fluo	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
22	Chrysene	1.3E-02	1.3E-02	1.3E-02	1.3E-07	1.3E-07	1.3E-07	1.3E-06	1.3E-06	1.3E-06						
23	Dibenz (a,h) a	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
24	Fluoranthene	2.0E-01	2.0E-01	2.0E-01	2.0E-06	2.0E-06	2.0E-06	2.0E-05	2.0E-05	2.0E-05						
25	Fluorene	3.9E-03	3.9E-03	3.9E-03	3.9E-08	3.9E-08	3.9E-08	3.9E-07	3.9E-07	3.9E-07						
26	Methylnaphthal	3.5E-04	3.5E-04	3.5E-04	3.5E-09	3.5E-09	3.5E-09	3.5E-08	3.5E-08	3.5E-08						
27	Naphthalene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
28	Phenanthrene	1.5E-01	1.5E-01	1.5E-01	1.5E-06	1.5E-06	1.5E-06	1.5E-05	1.5E-05	1.5E-05						
29	Pyrene	5.9E-02	5.9E-02	5.9E-02	5.9E-07	5.9E-07	5.9E-07	5.9E-06	5.9E-06	5.9E-06						
30	Bis (2-ethylhe	2.4E+00	2.4E+00	2.4E+00	2.4E-05	2.4E-05	2.4E-05	2.4E-04	2.4E-04	2.4E-04						
31	Butylbenzyl ph	1.1E+00	1.1E+00	1.1E+00	1.1E-05	1.1E-05	1.1E-05	1.1E-04	1.1E-04	1.1E-04						
32	Di-n-butyl pht	1.0E-01	1.0E-01	1.0E-01	1.0E-06	1.0E-06	1.0E-06	1.0E-05	1.0E-05	1.0E-05						
33	Di-n-octyl pht	3.4E-01	3.4E-01	3.4E-01	3.4E-06	3.4E-06	3.4E-06	3.4E-05	3.4E-05	3.4E-05						
34	Aldrin	3.2E-04	3.2E-04	3.2E-04	3.2E-09	3.2E-09	3.2E-09	3.2E-08	3.2E-08	3.2E-08						
35	Alpha-Endosulf	1.5E-03	1.5E-03	1.5E-03	1.5E-08	1.5E-08	1.5E-08	1.5E-07	1.5E-07	1.5E-07						
36	Beta-Endosulfa	3.8E-03	3.8E-03	3.8E-03	3.8E-08	3.8E-08	3.8E-08	3.8E-07	3.8E-07	3.8E-07						
37	DDD, 4,4'-	5.2E-03	5.2E-03	5.2E-03	5.2E-08	5.2E-08	5.2E-08	5.2E-07	5.2E-07	5.2E-07						
38	DDE, 4,4'-	6.7E-03	6.7E-03	6.7E-03	6.7E-08	6.7E-08	6.7E-08	6.7E-07	6.7E-07	6.7E-07						
39	DDT, 4,4'-	2.6E-02	2.6E-02	2.6E-02	2.6E-07	2.6E-07	2.6E-07	2.6E-06	2.6E-06	2.6E-06						
40	Dieldrin	5.7E-03	5.7E-03	5.7E-03	5.7E-08	5.7E-08	5.7E-08	5.7E-07	5.7E-07	5.7E-07						
41	Endrin	1.2E-02	1.2E-02	1.2E-02	1.2E-07	1.2E-07	1.2E-07	1.2E-06	1.2E-06	1.2E-06						
42	Gamma-BHC (Lin	7.6E-03	7.6E-03	7.6E-03	7.6E-08	7.6E-08	7.6E-08	7.6E-07	7.6E-07	7.6E-07						
43	Heptachlor	2.3E-03	2.3E-03	2.3E-03	2.3E-08	2.3E-08	2.3E-08	2.3E-07	2.3E-07	2.3E-07						
44	Heptachlor epo	1.8E-03	1.8E-03	1.8E-03	1.8E-08	1.8E-08	1.8E-08	1.8E-07	1.8E-07	1.8E-07						
45	Methoxychlor	1.4E-02	1.4E-02	1.4E-02	1.4E-07	1.4E-07	1.4E-07	1.4E-06	1.4E-06	1.4E-06						
46	PCB 1254	1.2E-03	1.2E-03	1.2E-03	1.2E-08	1.2E-08	1.2E-08	1.2E-07	1.2E-07	1.2E-07						
47	PCB 1260	2.6E-03	2.6E-03	2.6E-03	2.6E-08	2.6E-08	2.6E-08	2.6E-07	2.6E-07	2.6E-07						
48	Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
49	RDX	1.7E+00	1.7E+00	1.7E+00	1.7E-05	1.7E-05	1.7E-05	1.7E-04	1.7E-04	1.7E-04						

RANGE NAME: EPC3

EXPOSURE POINT CONCENTRATIONS

EXPOSURE POINT: BLDG 312

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		MEDIUM 1 INTERIOR RESIDUE			MEDIUM 2 INDOOR AIR			MEDIUM 3 INDOOR AIR REN			MEDIUM 4 0			MEDIUM 5 0		
		Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1	Ca	Cc	C1
	CHEMICAL NAME	31S	31C	31L	32S	32C	32L	33S	33C	33L	34S	34C	34L	35S	35C	35L
1	Antimony	2.1E-01	2.1E-01	2.1E-01	2.1E-06	2.1E-06	2.1E-06	2.1E-05	2.1E-05	2.1E-05						
2	Arsenic	8.3E-02	8.3E-02	8.3E-02	8.3E-07	8.3E-07	8.3E-07	8.3E-06	8.3E-06	8.3E-06						
3	Barium	3.6E+00	3.6E+00	3.6E+00	3.6E-05	3.6E-05	3.6E-05	3.6E-04	3.6E-04	3.6E-04						
4	Beryllium	1.3E+00	1.3E+00	1.3E+00	1.3E-05	1.3E-05	1.3E-05	1.3E-04	1.3E-04	1.3E-04						
5	Cadmium (food	9.8E+00	9.8E+00	9.8E+00	9.8E-05	9.8E-05	9.8E-05	9.8E-04	9.8E-04	9.8E-04						
6	Chromium (VI)	3.7E+00	3.7E+00	3.7E+00	3.7E-05	3.7E-05	3.7E-05	3.7E-04	3.7E-04	3.7E-04						
7	Lead and Compo	2.5E+01	2.5E+01	2.5E+01	2.5E-04	2.5E-04	2.5E-04	2.5E-03	2.5E-03	2.5E-03						
8	Mercury, inorg	1.9E-02	1.9E-02	1.9E-02	1.9E-07	1.9E-07	1.9E-07	1.9E-06	1.9E-06	1.9E-06						
9	Nickel	3.6E+00	3.6E+00	3.6E+00	3.6E-05	3.6E-05	3.6E-05	3.6E-04	3.6E-04	3.6E-04						
10	Silver	2.0E-01	2.0E-01	2.0E-01	2.0E-06	2.0E-06	2.0E-06	2.0E-05	2.0E-05	2.0E-05						
11	Vanadium	3.0E-01	3.0E-01	3.0E-01	3.0E-06	3.0E-06	3.0E-06	3.0E-05	3.0E-05	3.0E-05						
12	Cyanide (free)	1.5E+00	1.5E+00	1.5E+00	1.5E-05	1.5E-05	1.5E-05	1.5E-04	1.5E-04	1.5E-04						
13	Nitrate, nitra	6.2E+00	6.2E+00	6.2E+00	6.2E-05	6.2E-05	6.2E-05	6.2E-04	6.2E-04	6.2E-04						
14	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
15	Acenaphthylene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
16	Anthracene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
17	Benzo (a) anth	1.5E-03	1.5E-03	1.5E-03	1.5E-08	1.5E-08	1.5E-08	1.5E-07	1.5E-07	1.5E-07						
18	Benzo (a) pyre	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
19	Benzo (b) fluo	1.7E-03	1.7E-03	1.7E-03	1.7E-08	1.7E-08	1.7E-08	1.7E-07	1.7E-07	1.7E-07						
20	Benzo (g,h,i)	2.1E-03	2.1E-03	2.1E-03	2.1E-08	2.1E-08	2.1E-08	2.1E-07	2.1E-07	2.1E-07						
21	Benzo (k) fluo	5.1E-03	5.1E-03	5.1E-03	5.1E-08	5.1E-08	5.1E-08	5.1E-07	5.1E-07	5.1E-07						
22	Chrysene	8.5E-04	8.5E-04	8.5E-04	8.5E-09	8.5E-09	8.5E-09	8.5E-08	8.5E-08	8.5E-08						
23	Dibenz (a,h) a	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
24	Fluoranthene	7.5E-03	7.5E-03	7.5E-03	7.5E-08	7.5E-08	7.5E-08	7.5E-07	7.5E-07	7.5E-07						
25	Fluorene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
26	Methylnaphthal	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
27	Naphthalene	1.5E-02	1.5E-02	1.5E-02	1.5E-07	1.5E-07	1.5E-07	1.5E-06	1.5E-06	1.5E-06						
28	Phenanthrene	1.5E-02	1.5E-02	1.5E-02	1.5E-07	1.5E-07	1.5E-07	1.5E-06	1.5E-06	1.5E-06						
29	Pyrene	5.6E-03	5.6E-03	5.6E-03	5.6E-08	5.6E-08	5.6E-08	5.6E-07	5.6E-07	5.6E-07						
30	Bis (2-ethylhe	2.8E+00	2.8E+00	2.8E+00	2.8E-05	2.8E-05	2.8E-05	2.8E-04	2.8E-04	2.8E-04						
31	Butylbenzyl ph	2.1E+00	2.1E+00	2.1E+00	2.1E-05	2.1E-05	2.1E-05	2.1E-04	2.1E-04	2.1E-04						
32	Di-n-butyl pht	6.9E-01	6.9E-01	6.9E-01	6.9E-06	6.9E-06	6.9E-06	6.9E-05	6.9E-05	6.9E-05						
33	Di-n-octyl pht	3.4E-01	3.4E-01	3.4E-01	3.4E-06	3.4E-06	3.4E-06	3.4E-05	3.4E-05	3.4E-05						
34	Aldrin	3.8E-03	3.8E-03	3.8E-03	3.8E-08	3.8E-08	3.8E-08	3.8E-07	3.8E-07	3.8E-07						
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
36	Beta-Endosulfa	1.1E-03	1.1E-03	1.1E-03	1.1E-08	1.1E-08	1.1E-08	1.1E-07	1.1E-07	1.1E-07						
37	DDD, 4,4'-	5.8E-04	5.8E-04	5.8E-04	5.8E-09	5.8E-09	5.8E-09	5.8E-08	5.8E-08	5.8E-08						
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
39	DDT, 4,4'-	5.1E-03	5.1E-03	5.1E-03	5.1E-08	5.1E-08	5.1E-08	5.1E-07	5.1E-07	5.1E-07						
40	Dieldrin	1.7E-03	1.7E-03	1.7E-03	1.7E-08	1.7E-08	1.7E-08	1.7E-07	1.7E-07	1.7E-07						
41	Endrin	3.9E-03	3.9E-03	3.9E-03	3.9E-08	3.9E-08	3.9E-08	3.9E-07	3.9E-07	3.9E-07						
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
44	Heptachlor epo	2.4E-04	2.4E-04	2.4E-04	2.4E-09	2.4E-09	2.4E-09	2.4E-08	2.4E-08	2.4E-08						
45	Methoxychlor	1.2E-02	1.2E-02	1.2E-02	1.2E-07	1.2E-07	1.2E-07	1.2E-06	1.2E-06	1.2E-06						
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
47	PCB 1260	5.3E-02	5.3E-02	5.3E-02	5.3E-07	5.3E-07	5.3E-07	5.3E-06	5.3E-06	5.3E-06						
48	Dinitrotoluene	3.3E-03	3.3E-03	3.3E-03	3.3E-08	3.3E-08	3.3E-08	3.3E-07	3.3E-07	3.3E-07						
49	RDX	4.1E-01	4.1E-01	4.1E-01	4.1E-06	4.1E-06	4.1E-06	4.1E-05	4.1E-05	4.1E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 39

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.4E-05	7.0E-08	7.2E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.0E-05	8.1E-08	8.3E-07			
3	Barium	4.5E-04	1.3E-06	1.4E-05			
4	Beryllium	8.0E-08	2.3E-10	2.4E-09			
5	Cadmium (food	1.2E-04	3.5E-06	3.6E-06			
6	Chromium (VI)	6.8E-04	2.0E-06	2.0E-05			
7	Lead and Compo	9.7E-04	1.7E-05	2.9E-05			
8	Mercury, inorg	1.1E-05	3.3E-08	3.4E-07			
9	Nickel	6.4E-04	NA	1.9E-05			
10	Silver	1.9E-05	5.4E-07	5.6E-07			
11	Vanadium	3.5E-05	1.0E-07	1.0E-06			
12	Cyanide (free)	2.0E-05	1.7E-06	5.9E-07			
13	Nitrate, nitra	1.4E-04	4.0E-07	4.1E-06			
14	Acenaphthene	1.8E-08	NA	5.4E-10			
15	Acenaphthylene	1.6E-07	NA	4.9E-09			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.2E-06	NA	6.5E-08			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	6.9E-08	NA	2.1E-09			
22	Chrysene	9.1E-07	NA	2.7E-08			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.5E-06	NA	4.5E-08			
25	Fluorene	9.9E-08	NA	3.0E-09			
26	Methylnaphthal	1.6E-07	NA	4.9E-09			
27	Naphthalene	4.0E-07	NA	1.2E-08			
28	Phenanthrene	2.8E-06	NA	8.3E-08			
29	Pyrene	2.6E-06	NA	7.7E-08			
30	Bis (2-ethylhe	1.9E-04	NA	5.8E-06			
31	Butylbenzyl ph	1.6E-04	NA	4.8E-06			
32	Di-n-butyl pht	1.2E-04	NA	3.6E-06			
33	Di-n-octyl pht	9.7E-06	NA	2.9E-07			
34	Aldrin	1.7E-07	5.1E-09	5.2E-09			
35	Alpha-Endosulf	9.8E-09	2.9E-10	3.0E-10			
36	Beta-Endosulfa	6.0E-09	1.7E-10	1.8E-10			
37	DDD, 4,4'-	3.4E-08	1.0E-09	1.0E-09			
38	DDE, 4,4'-	5.6E-08	1.6E-09	1.7E-09			
39	DDT, 4,4'-	2.7E-07	7.8E-09	8.0E-09			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	8.3E-08	2.4E-09	2.5E-09			
42	Gamma-BHC (Lin	1.4E-06	4.0E-10	4.1E-10			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	8.8E-09	2.6E-10	2.6E-10			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	4.3E-05	7.9E-06	1.3E-06			
47	PCB 1260	5.3E-07	9.3E-08	1.6E-08			

SUBCHRONIC RISK SUMMARY

FUTURE
RESIDENT 39

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-02	2E-03	NA	0E+00	0E+00	0E+00
9E-02	3E-04	NA			
6E-03	2E-04	1E-02			
2E-05	9E-06	NA			
NA	NA	NA			
3E-02	2E-03	2E+01			
NA	NA	NA			
4E-02	6E-03	NA			
3E-02	NA	NA			
4E-03	2E-03	NA			
5E-03	1E-03	NA			
1E-03	9E-05	2E-03			
1E-03	4E-06	NA			
3E-08	NA	NA			
4E-06	NA	NA			
0E+00	NA	NA			
5E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
2E-06	NA	NA			
2E-05	NA	NA			
0E+00	NA	NA			
4E-06	NA	NA			
2E-07	NA	NA			
4E-06	NA	NA			
1E-05	NA	NA			
9E-06	NA	NA			
9E-06	NA	NA			
1E-02	NA	NA			
8E-05	NA	NA			
1E-04	NA	NA			
5E-04	NA	NA			
6E-03	2E-04	NA			
5E-05	1E-06	NA			
3E-05	9E-07	NA			
NA	NA	NA			
NA	NA	NA			
5E-04	2E-05	NA			
0E+00	0E+00	NA			
3E-04	8E-06	NA			
5E-06	1E-07	NA			
0E+00	0E+00	NA			
7E-04	2E-05	NA			
0E+00	NA	NA			
6E-01	1E-01	NA			
8E-03	1E-03	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00			0E+00	0E+00	NA			
49 RDX	4.1E-06	1.2E-07	1.2E-07			1E-03	4E-05	NA			
				PATHWAY SUM (HI)		9E-01	1E-01	2E+01	0E+00	0E+00	0E+00
				POPULATION TOTAL		2E+01					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 39

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.5E-05	6.1E-08	4.5E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.7E-05	7.0E-08	5.2E-07			
3	Barium	2.8E-04	1.1E-06	8.5E-06			
4	Beryllium	5.0E-08	2.0E-10	1.5E-09			
5	Cadmium (food	7.5E-05	3.0E-06	2.2E-06			
6	Chromium (VI)	4.3E-04	1.7E-06	1.3E-05			
7	Lead and Compo	6.1E-04	1.5E-05	1.8E-05			
8	Mercury, inorg	7.2E-06	2.9E-08	2.2E-07			
9	Nickel	4.0E-04	NA	1.2E-05			
10	Silver	1.2E-05	4.7E-07	3.5E-07			
11	Vanadium	2.2E-05	8.9E-08	6.5E-07			
12	Cyanide (free)	1.2E-05	1.5E-06	3.7E-07			
13	Nitrate, nitra	8.5E-05	3.4E-07	2.5E-06			
14	Acenaphthene	1.1E-08	NA	3.4E-10			
15	Acenaphthylene	1.0E-07	NA	3.1E-09			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.3E-06	NA	4.0E-08			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	4.3E-08	NA	1.3E-09			
22	Chrysene	5.7E-07	NA	1.7E-08			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	9.3E-07	NA	2.8E-08			
25	Fluorene	6.2E-08	NA	1.8E-09			
26	Methylnaphthal	1.0E-07	NA	3.1E-09			
27	Naphthalene	2.5E-07	NA	7.5E-09			
28	Phenanthrene	1.7E-06	NA	5.2E-08			
29	Pyrene	1.6E-06	NA	4.8E-08			
30	Bis (2-ethylhe	1.2E-04	NA	3.6E-06			
31	Butylbenzyl ph	1.0E-04	NA	3.0E-06			
32	Di-n-butyl pht	7.4E-05	NA	2.2E-06			
33	Di-n-octyl pht	6.1E-06	NA	1.8E-07			
34	Aldrin	1.1E-07	4.4E-09	3.3E-09			
35	Alpha-Endosulf	6.2E-09	2.5E-10	1.8E-10			
36	Beta-Endosulfa	3.7E-09	1.5E-10	1.1E-10			
37	DDD, 4,4'-	2.1E-08	8.7E-10	6.4E-10			
38	DDE, 4,4'-	3.5E-08	1.4E-09	1.1E-09			
39	DDT, 4,4'-	1.7E-07	6.7E-09	5.0E-09			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	8.2E-08	2.1E-09	1.6E-09			
42	Gamma-BHC (Lin	8.6E-09	3.5E-10	2.6E-10			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	5.5E-09	2.2E-10	1.6E-10			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	2.7E-05	6.9E-06	8.0E-07			
47	PCB 1260	3.3E-07	8.1E-08	9.9E-09			

CHRONIC RISK SUMMARY

FUTURE
RESIDENT 39

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
4E-02	2E-03	NA	0E+00	0E+00	0E+00
6E-02	2E-04	NA			
4E-03	2E-04	6E-02			
1E-05	8E-06	NA			
7E-02	1E-01	NA			
9E-02	7E-03	NA			
NA	NA	NA			
2E-02	5E-03	NA			
2E-02	NA	NA			
2E-03	2E-03	NA			
3E-03	1E-03	NA			
6E-04	7E-05	2E-04			
8E-04	3E-06	NA			
2E-07	NA	NA			
3E-06	NA	NA			
0E+00	NA	NA			
3E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-06	NA	NA			
1E-05	NA	NA			
0E+00	NA	NA			
2E-05	NA	NA			
2E-06	NA	NA			
3E-06	NA	NA			
8E-06	NA	NA			
6E-05	NA	NA			
5E-05	NA	NA			
6E-03	NA	NA			
5E-04	NA	NA			
7E-04	NA	NA			
3E-04	NA	NA			
4E-03	1E-04	NA			
1E-04	5E-06	NA			
7E-05	3E-06	NA			
NA	NA	NA			
NA	NA	NA			
3E-04	1E-05	NA			
0E+00	0E+00	NA			
2E-04	7E-06	NA			
3E-05	1E-06	NA			
0E+00	0E+00	NA			
4E-04	2E-05	NA			
0E+00	NA	NA			
4E-01	1E-01	NA			
5E-03	1E-03	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	2.5E-06	1.0E-07	7.6E-08							
					0E+00	0E+00	NA			
					8E-04	3E-05	NA			
				PATHWAY SUM (HI)	7E-01	2E-01	8E-02	0E+00	0E+00	0E+00
				POPULATION TOTAL	1E+00					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RESIDENT 39

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.6E-06	2.4E-08	7.7E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.0E-06	2.8E-08	8.9E-08			
3	Barium	4.8E-05	4.6E-07	1.4E-06			
4	Beryllium	8.5E-09	8.1E-11	2.6E-10			
5	Cadmium (food	1.3E-05	1.2E-06	3.8E-07			
6	Chromium (VI)	7.2E-05	6.9E-07	2.2E-06			
7	Lead and Compo	1.0E-04	5.9E-06	3.1E-06			
8	Mercury, inorg	1.2E-06	1.2E-08	3.7E-08			
9	Nickel	6.8E-05	NA	2.0E-06			
10	Silver	2.0E-06	1.9E-07	5.9E-08			
11	Vanadium	3.7E-06	3.5E-08	1.1E-07			
12	Cyanide (free)	2.1E-06	5.9E-07	6.3E-08			
13	Nitrate, nitra	1.4E-05	1.4E-07	4.3E-07			
14	Acenaphthene	1.9E-09	NA	5.8E-11			
15	Acenaphthylene	1.7E-08	NA	5.2E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.3E-07	NA	6.9E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) flue	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) flue	7.4E-09	NA	2.2E-10			
22	Chrysene	9.6E-08	NA	2.9E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.6E-07	NA	4.8E-09			
25	Fluorene	1.0E-08	NA	3.1E-10			
26	Methylnaphthal	1.8E-08	NA	5.3E-10			
27	Naphthalene	4.2E-08	NA	1.3E-09			
28	Phenanthrene	3.0E-07	NA	8.9E-09			
29	Pyrene	2.7E-07	NA	8.2E-09			
30	Bis (2-ethylhe	2.1E-05	NA	6.2E-07			
31	Butylbenzyl ph	1.7E-05	NA	5.1E-07			
32	Di-n-butyl pht	1.3E-05	NA	3.8E-07			
33	Di-n-octyl pht	1.0E-06	NA	3.1E-08			
34	Aldrin	1.8E-08	1.7E-09	5.5E-10			
35	Alpha-Endosulf	1.0E-09	9.9E-11	3.1E-11			
36	Beta-Endosulfa	6.3E-10	6.0E-11	1.9E-11			
37	DDD, 4,4'-	3.6E-09	3.4E-10	1.1E-10			
38	DDE, 4,4'-	6.0E-09	5.7E-10	1.8E-10			
39	DDT, 4,4'-	2.8E-08	2.7E-09	8.5E-10			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	8.8E-09	8.3E-10	2.6E-10			
42	Gamma-BHC (Lin	1.5E-09	1.4E-10	4.4E-11			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	9.3E-10	8.8E-11	2.8E-11			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	4.6E-06	2.6E-06	1.4E-07			
47	PCB 1260	5.6E-08	3.2E-08	1.7E-09			

LIFETIME RISK SUMMARY

FUTURE
RESIDENT 39

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
5E-06	5E-06	1E-06			
NA	NA	NA			
4E-06	7E-06	2E-09			
NA	NA	2E-06			
NA	NA	9E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	2E-06			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-06	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
5E-08	NA	NA			
7E-07	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
3E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
3E-07	3E-08	9E-09			
NA	NA	NA			
NA	NA	NA			
9E-10	8E-11	NA			
2E-09	2E-10	NA			
1E-08	9E-10	3E-10			
0E+00	0E+00	0E+00			
NA	NA	NA			
2E-09	2E-10	NA			
0E+00	0E+00	0E+00			
8E-09	8E-10	3E-10			
NA	NA	NA			
4E-05	2E-05	NA			
4E-07	3E-07	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00			0E+00	0E+00	NA			
49 RDX	4.3E-07	4.1E-08	1.3E-08			5E-08	5E-09	NA			
				TOTAL PATHWAY CANCER RISK		5E-05	2E-05	1E-04	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK		2E-04					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP2
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
COMM. WORKER 39

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.6E-07	2.4E-08	4.9E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.0E-07	2.8E-08	5.7E-08			
3	Barium	4.9E-06	4.6E-07	9.3E-07			
4	Beryllium	8.6E-10	8.1E-11	1.6E-10			
5	Cadmium (food	1.3E-06	1.2E-06	2.5E-07			
6	Chromium (VI)	7.3E-06	6.9E-07	1.4E-06			
7	Lead and Compo	1.0E-05	5.9E-06	2.0E-06			
8	Mercury, inorg	1.2E-07	1.2E-08	2.4E-08			
9	Nickel	6.8E-06	NA	1.3E-06			
10	Silver	2.0E-07	1.9E-07	3.8E-08			
11	Vanadium	3.7E-07	3.5E-08	7.2E-08			
12	Cyanide (free)	2.1E-07	6.0E-07	4.0E-08			
13	Nitrate, nitra	1.5E-06	1.4E-07	2.8E-07			
14	Acenaphthene	1.9E-10	NA	3.7E-11			
15	Acenaphthylene	1.7E-09	NA	3.4E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.3E-08	NA	4.4E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	7.4E-10	NA	1.4E-10			
22	Chrysene	9.7E-09	NA	1.9E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.6E-08	NA	3.1E-09			
25	Fluorene	1.1E-09	NA	2.0E-10			
26	Methylnaphthal	1.8E-09	NA	3.4E-10			
27	Naphthalene	4.3E-09	NA	8.2E-10			
28	Phenanthrene	3.0E-08	NA	5.7E-09			
29	Pyrene	2.8E-08	NA	5.3E-09			
30	Bis (2-ethylhe	2.1E-06	NA	4.0E-07			
31	Butylbenzyl ph	1.7E-06	NA	3.3E-07			
32	Di-n-butyl pht	1.3E-06	NA	2.4E-07			
33	Di-n-octyl pht	1.0E-07	NA	2.0E-08			
34	Aldrin	1.9E-09	1.8E-09	3.6E-10			
35	Alpha-Endosulf	1.1E-10	1.0E-10	2.0E-11			
36	Beta-Endosulfa	6.4E-11	6.0E-11	1.2E-11			
37	DDD, 4,4'-	3.7E-10	3.5E-10	7.0E-11			
38	DDE, 4,4'-	6.0E-10	5.7E-10	1.2E-10			
39	DDT, 4,4'-	2.8E-09	2.7E-09	5.5E-10			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	8.9E-10	8.4E-10	1.7E-10			
42	Gamma-BHC (Lin	1.5E-10	1.4E-10	2.8E-11			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	9.4E-11	8.9E-11	1.8E-11			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	4.6E-07	2.6E-06	8.8E-08			
47	PCB 1260	5.7E-09	3.2E-08	1.1E-09			

CHRONIC RISK SUMMARY

FUTURE
COMM. WORKER 39

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-04	6E-04	NA	0E+00	0E+00	0E+00
1E-03	1E-04	NA			
7E-05	7E-05	7E-03			
2E-07	3E-06	NA			
1E-03	5E-02	NA			
1E-03	3E-03	NA			
NA	NA	NA			
4E-04	2E-03	NA			
3E-04	NA	NA			
4E-05	8E-04	NA			
5E-05	5E-04	NA			
1E-05	3E-05	2E-05			
1E-05	1E-06	NA			
3E-09	NA	NA			
4E-08	NA	NA			
0E+00	NA	NA			
6E-07	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
2E-08	NA	NA			
2E-07	NA	NA			
0E+00	NA	NA			
4E-07	NA	NA			
3E-08	NA	NA			
4E-08	NA	NA			
1E-07	NA	NA			
1E-06	NA	NA			
9E-07	NA	NA			
1E-04	NA	NA			
9E-06	NA	NA			
1E-05	NA	NA			
5E-06	NA	NA			
6E-05	6E-05	NA			
2E-06	2E-06	NA			
1E-06	1E-06	NA			
NA	NA	NA			
NA	NA	NA			
6E-06	5E-06	NA			
0E+00	0E+00	NA			
3E-06	3E-06	NA			
5E-07	5E-07	NA			
0E+00	0E+00	NA			
7E-06	7E-06	NA			
0E+00	NA	NA			
7E-03	4E-02	NA			
8E-05	5E-04	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	4.4E-06	4.1E-06	8.4E-09							
					0E+00	0E+00	NA			
					1E-05	1E-05	NA			
				PATHWAY SUM (HI)	1E-02	1E-01	7E-03	0E+00	0E+00	0E+00
				POPULATION TOTAL	1E-01					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP2
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
COMM. WORKER 39

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	9.2E-08	8.7E-09	1.8E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.1E-07	1.0E-08	2.0E-08			
3	Barium	1.7E-06	1.6E-07	3.3E-07			
4	Beryllium	3.1E-10	2.9E-11	5.9E-11			
5	Cadmium (food	4.6E-07	4.3E-07	8.8E-08			
6	Chromium (VI)	2.6E-06	2.5E-07	5.0E-07			
7	Lead and Compo	3.7E-06	2.1E-06	7.1E-07			
8	Mercury, inorg	4.4E-08	4.2E-09	8.4E-09			
9	Nickel	2.4E-06	NA	4.7E-07			
10	Silver	7.1E-08	6.7E-08	1.4E-08			
11	Vanadium	1.3E-07	1.3E-08	2.6E-08			
12	Cyanide (free)	7.5E-08	2.1E-07	1.4E-08			
13	Nitrate, nitra	5.2E-07	4.9E-08	1.0E-07			
14	Acenaphthene	6.9E-11	NA	1.3E-11			
15	Acenaphthylene	6.2E-10	NA	1.2E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	8.3E-09	NA	1.6E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) flue	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) flue	2.6E-10	NA	5.1E-11			
22	Chrysene	3.5E-09	NA	6.6E-10			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	5.7E-09	NA	1.1E-09			
25	Fluorene	3.8E-10	NA	7.2E-11			
26	Methylnaphthal	6.3E-10	NA	1.2E-10			
27	Naphthalene	1.5E-09	NA	2.9E-10			
28	Phenanthrene	1.1E-08	NA	2.0E-09			
29	Pyrene	9.8E-09	NA	1.9E-09			
30	Bis (2-ethylhe	7.4E-07	NA	1.4E-07			
31	Butylbenzyl ph	6.1E-07	NA	1.2E-07			
32	Di-n-butyl pht	4.6E-07	NA	8.7E-08			
33	Di-n-octyl pht	3.7E-08	NA	7.1E-09			
34	Aldrin	6.6E-10	6.3E-10	1.3E-10			
35	Alpha-Endosulf	3.8E-11	3.6E-11	7.2E-12			
36	Beta-Endosulfa	2.3E-11	2.2E-11	4.4E-12			
37	DDD, 4,4'-	1.3E-10	1.2E-10	2.5E-11			
38	DDE, 4,4'-	2.1E-10	2.0E-10	4.1E-11			
39	DDT, 4,4'-	1.0E-09	9.6E-10	2.0E-10			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	3.2E-10	3.0E-10	6.1E-11			
42	Gamma-BHC (Lin	5.3E-11	5.0E-11	1.0E-11			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	3.4E-11	3.2E-11	6.4E-12			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	1.6E-07	9.3E-07	3.1E-08			
47	PCB 1260	2.0E-09	1.2E-08	3.9E-10			

LIFETIME RISK SUMMARY

FUTURE
COMM. WORKER 39

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 39 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
2E-07	2E-08	3E-07			
NA	NA	NA			
1E-09	2E-08	5E-10			
NA	NA	5E-07			
NA	NA	2E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	4E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
6E-08	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
2E-09	NA	NA			
3E-08	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	1E-08	2E-09			
NA	NA	NA			
NA	NA	NA			
3E-11	3E-11	NA			
7E-11	7E-11	NA			
3E-10	3E-10	7E-11			
0E+00	0E+00	0E+00			
NA	NA	NA			
7E-11	6E-11	NA			
0E+00	0E+00	0E+00			
3E-10	3E-10	6E-11			
NA	NA	NA			
1E-06	8E-06	NA			
2E-08	9E-08	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00								
49 RDX	1.6E-08	1.5E-08	3.0E-09								
					0E+00	0E+00	NA				
					2E-09	2E-09	NA				
				TOTAL PATHWAY CANCER RISK	1E-06	8E-06	2E-05	0E+00	0E+00	0E+00	
				POPULATION TOTAL EXCESS RISK	3E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP3
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 39

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.6E-07	1.0E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.0E-07	1.2E-06				
3	Barium	4.9E-06	1.9E-05				
4	Beryllium	8.6E-10	3.4E-09				
5	Cadmium (food	1.3E-06	5.1E-06				
6	Chromium (VI)	7.3E-06	2.9E-05				
7	Lead and Compo	1.0E-05	4.2E-05				
8	Mercury, inorg	1.2E-07	4.9E-07				
9	Nickel	6.8E-06	2.7E-05				
10	Silver	2.0E-07	8.0E-07				
11	Vanadium	3.7E-07	1.5E-06				
12	Cyanide (free)	2.1E-07	8.4E-07				
13	Nitrate, nitra	1.5E-06	5.8E-06				
14	Acenaphthene	1.9E-10	7.6E-10				
15	Acenaphthylene	1.7E-09	7.0E-09				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	2.3E-08	9.2E-08				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) fluo	7.4E-10	3.0E-09				
22	Chrysene	9.7E-09	3.9E-08				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	1.6E-08	6.4E-08				
25	Fluorene	1.1E-09	4.2E-09				
26	Methylnaphthal	1.8E-09	7.1E-09				
27	Naphthalene	4.3E-09	1.7E-08				
28	Phenanthrene	3.0E-08	1.2E-07				
29	Pyrene	2.8E-08	1.1E-07				
30	Bis (2-ethylhe	2.1E-06	8.3E-06				
31	Butylbenzyl ph	1.7E-06	6.8E-06				
32	Di-n-butyl pht	1.3E-06	5.1E-06				
33	Di-n-octyl pht	1.0E-07	4.2E-07				
34	Aldrin	1.9E-09	7.4E-09				
35	Alpha-Endosulf	1.1E-10	4.2E-10				
36	Beta-Endosulfa	6.4E-11	2.6E-10				
37	DDD, 4,4'-	3.7E-10	1.5E-09				
38	DDE, 4,4'-	6.0E-10	2.4E-09				
39	DDT, 4,4'-	2.8E-09	1.1E-08				
40	Dieldrin	0.0E+00	0.0E+00				
41	Endrin	8.9E-10	3.6E-09				
42	Gamma-BHC (Lin	1.5E-10	5.9E-10				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	9.4E-11	3.8E-10				
45	Methoxychlor	0.0E+00	0.0E+00				
46	PCB 1254	4.6E-07	1.8E-06				
47	PCB 1260	5.7E-09	2.3E-08				

SUBCHRONIC RISK SUMMARY

FUTURE
RENOV. WORKER 39

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-04	NA	0E+00	0E+00	0E+00	0E+00
1E-03	NA				
7E-05	1E-02				
2E-07	NA				
NA	NA				
4E-04	3E+01				
NA	NA				
4E-04	NA				
3E-04	NA				
4E-05	NA				
5E-05	NA				
1E-05	3E-03				
1E-05	NA				
3E-10	NA				
4E-08	NA				
0E+00	NA				
6E-07	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
2E-08	NA				
2E-07	NA				
0E+00	NA				
4E-08	NA				
3E-09	NA				
4E-08	NA				
1E-07	NA				
1E-07	NA				
9E-08	NA				
1E-04	NA				
9E-07	NA				
1E-06	NA				
5E-06	NA				
6E-05	NA				
5E-07	NA				
3E-07	NA				
NA	NA				
NA	NA				
6E-06	NA				
0E+00	NA				
3E-06	NA				
5E-08	NA				
0E+00	NA				
7E-06	NA				
0E+00	NA				
7E-03	NA				
8E-05	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00									
49 RDX	4.4E-08	1.7E-07									
				0E+00	NA						
				1E-05	NA						
PATHWAY SUM (HI)				1E-02	3E+01	0E+00	0E+00	0E+00	0E+00		
POPULATION TOTAL				3E+01							

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP3
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 39

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.7E-09	1.5E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	4.2E-09	1.7E-08				
3	Barium	6.9E-08	2.8E-07				
4	Beryllium	1.2E-11	4.9E-11				
5	Cadmium (food	1.8E-08	7.3E-08				
6	Chromium (VI)	1.0E-07	4.2E-07				
7	Lead and Compo	1.5E-07	5.9E-07				
8	Mercury, inorg	1.8E-09	7.0E-09				
9	Nickel	9.8E-08	3.9E-07				
10	Silver	2.8E-09	1.1E-08				
11	Vanadium	5.3E-09	2.1E-08				
12	Cyanide (free)	3.0E-09	1.2E-08				
13	Nitrate, nitra	2.1E-08	8.3E-08				
14	Acenaphthene	2.8E-12	1.1E-11				
15	Acenaphthylene	2.5E-11	1.0E-10				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	3.3E-10	1.3E-09				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) flue	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) flue	1.1E-11	4.2E-11				
22	Chrysene	1.4E-10	5.5E-10				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	2.3E-10	9.1E-10				
25	Fluorene	1.5E-11	6.0E-11				
26	Methylnaphthal	2.5E-11	1.0E-10				
27	Naphthalene	6.1E-11	2.4E-10				
28	Phenanthrene	4.2E-10	1.7E-09				
29	Pyrene	3.9E-10	1.6E-09				
30	Bis (2-ethylhe	3.0E-08	1.2E-07				
31	Butylbenzyl ph	2.4E-08	9.8E-08				
32	Di-n-butyl pht	1.8E-08	7.3E-08				
33	Di-n-octyl pht	1.5E-09	6.0E-09				
34	Aldrin	2.7E-11	1.1E-10				
35	Alpha-Endosulf	1.5E-12	6.0E-12				
36	Beta-Endosulfa	9.1E-13	3.6E-12				
37	DDD, 4,4'-	5.2E-12	2.1E-11				
38	DDE, 4,4'-	8.6E-12	3.4E-11				
39	DDT, 4,4'-	4.1E-11	1.6E-10				
40	Dieldrin	0.0E+00	0.0E+00				
41	Endrin	1.3E-11	5.1E-11				
42	Gamma-BHC (Lin	2.1E-12	8.4E-12				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	1.3E-12	5.4E-12				
45	Methoxychlor	0.0E+00	0.0E+00				
46	PCB 1254	6.6E-09	2.6E-08				
47	PCB 1260	8.1E-11	3.2E-10				

LIFETIME RISK SUMMARY

FUTURE
RENOV. WORKER 39

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 39 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 39 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
7E-09	3E-07				
NA	NA				
5E-11	4E-10				
NA	4E-07				
NA	2E-05				
NA	NA				
NA	NA				
NA	3E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
2E-09	NA				
0E+00	NA				
0E+00	NA				
NA	NA				
8E-11	NA				
1E-09	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
4E-10	NA				
NA	NA				
NA	NA				
NA	NA				
5E-10	2E-09				
NA	NA				
NA	NA				
1E-12	NA				
3E-12	NA				
1E-11	6E-11				
0E+00	0E+00				
NA	NA				
3E-12	NA				
0E+00	0E+00				
1E-11	5E-11				
NA	NA				
8E-08	NA				
6E-10	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00			0E+00	NA					
49 RDX	6.2E-10	2.5E-09			7E-11	NA					
TOTAL PATHWAY CANCER RISK					6E-08	2E-05	0E+00	0E+00	0E+00	0E+00	
POPULATION TOTAL EXCESS RISK					2E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 311

		SUBCHRONIC DAILY INTAKE (mg/kg/day)					
		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		BLDG 311	BLDG 311	BLDG 311	0	0	0
		INTERIOR RE	INTERIOR RE	INDOOR AIR	0	0	0
		ORAL	DERMAL	INHALATION	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Antimony	2.2E-05	6.5E-08	6.7E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.7E-06	1.1E-08	1.1E-07			
3	Barium	5.1E-04	1.5E-06	1.5E-05			
4	Beryllium	4.1E-07	1.2E-09	1.2E-08			
5	Cadmium (food	7.0E-05	2.0E-06	2.1E-06			
6	Chromium (VI)	3.8E-04	1.1E-06	1.1E-05			
7	Lead and Compo	1.6E-03	2.7E-05	4.7E-05			
8	Mercury, inorg	1.8E-06	5.3E-09	5.4E-08			
9	Nickel	3.1E-04	NA	9.3E-06			
10	Silver	3.7E-06	1.1E-07	1.1E-07			
11	Vanadium	1.0E-04	3.0E-07	3.0E-06			
12	Cyanide (free)	2.8E-06	2.4E-07	8.3E-08			
13	Nitrate, nitra	1.5E-03	4.4E-06	4.6E-05			
14	Acenaphthene	2.2E-07	NA	6.6E-09			
15	Acenaphthylene	1.8E-07	NA	5.4E-09			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.4E-06	NA	7.3E-08			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	0.0E+00	NA	0.0E+00			
22	Chrysene	1.2E-06	NA	3.6E-08			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.8E-05	NA	5.5E-07			
25	Fluorene	3.6E-07	NA	1.1E-08			
26	Methylnaphthal	3.2E-08	NA	9.5E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.4E-05	NA	4.1E-07			
29	Pyrene	5.3E-06	NA	1.6E-07			
30	Bis (2-ethylhe	2.2E-04	NA	6.7E-06			
31	Butylbenzyl ph	1.0E-04	NA	3.1E-06			
32	Di-n-butyl pht	9.4E-06	NA	2.8E-07			
33	Di-n-octyl pht	3.1E-05	NA	9.3E-07			
34	Aldrin	3.0E-08	8.7E-10	8.9E-10			
35	Alpha-Endosulf	1.3E-07	3.9E-09	4.0E-09			
36	Beta-Endosulfa	3.5E-07	1.0E-08	1.0E-08			
37	DDD, 4,4'-	4.7E-07	1.4E-08	1.4E-08			
38	DDE, 4,4'-	6.1E-07	1.8E-08	1.8E-08			
39	DDT, 4,4'-	2.3E-06	6.8E-08	7.0E-08			
40	Dieldrin	5.2E-07	1.5E-08	1.5E-08			
41	Endrin	1.1E-06	3.3E-08	3.4E-08			
42	Gamma-BHC (Lin	6.9E-07	2.0E-08	2.1E-08			
43	Heptachlor	2.1E-07	6.0E-09	6.2E-09			
44	Heptachlor epo	1.7E-07	4.9E-09	5.0E-09			
45	Methoxychlor	1.3E-06	NA	3.8E-08			
46	PCB 1254	1.1E-07	1.9E-08	3.3E-09			
47	PCB 1260	2.4E-07	4.2E-08	7.1E-09			

SUBCHRONIC RISK SUMMARY

FUTURE
RESIDENT 311

SUBCHRONIC HAZARD QUOTIENT					
SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
BLDG 311	BLDG 311	BLDG 311	0	0	0
INTERIOR RE	INTERIOR RE	INDOOR AIR	0	0	0
ORAL	DERMAL	INHALATION	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
6E-02	2E-03	NA	0E+00	0E+00	0E+00
1E-02	4E-05	NA			
7E-03	2E-04	1E-02			
8E-05	5E-05	NA			
NA	NA	NA			
2E-02	1E-03	1E+01			
NA	NA	NA			
6E-03	9E-04	NA			
2E-02	NA	NA			
7E-04	4E-04	NA			
1E-02	4E-03	NA			
1E-04	1E-05	3E-04			
2E-02	4E-05	NA			
4E-07	NA	NA			
4E-06	NA	NA			
0E+00	NA	NA			
6E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
3E-05	NA	NA			
0E+00	NA	NA			
5E-05	NA	NA			
9E-07	NA	NA			
8E-07	NA	NA			
0E+00	NA	NA			
5E-05	NA	NA			
2E-05	NA	NA			
1E-02	NA	NA			
5E-05	NA	NA			
9E-06	NA	NA			
2E-03	NA	NA			
1E-03	3E-05	NA			
7E-04	2E-05	NA			
2E-03	5E-05	NA			
NA	NA	NA			
NA	NA	NA			
5E-03	1E-04	NA			
1E-02	3E-04	NA			
4E-03	1E-04	NA			
2E-04	7E-06	NA			
4E-04	1E-05	NA			
1E-02	4E-04	NA			
3E-04	NA	NA			
2E-03	3E-04	NA			
3E-03	6E-04	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	1.6E-04	4.6E-06	4.8E-06							
					0E+00	0E+00	NA			
					5E-02	2E-03	NA			
				PATHWAY SUM (HI)	3E-01	1E-02	1E+01	0E+00	0E+00	0E+00
				POPULATION TOTAL	1E+01					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 311

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.4E-05	5.6E-08	4.2E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.3E-06	9.4E-09	7.0E-08			
3	Barium	3.2E-04	1.3E-06	9.6E-06			
4	Beryllium	2.6E-07	1.0E-09	7.7E-09			
5	Cadmium (food	4.4E-05	1.8E-06	1.3E-06			
6	Chromium (VI)	2.4E-04	9.6E-07	7.1E-06			
7	Lead and Compo	9.8E-04	2.4E-05	2.9E-05			
8	Mercury, inorg	1.1E-06	4.6E-09	3.4E-08			
9	Nickel	1.9E-04	NA	5.8E-06			
10	Silver	2.3E-06	9.3E-08	6.9E-08			
11	Vanadium	6.3E-05	2.6E-07	1.9E-06			
12	Cyanide (free)	1.7E-06	2.1E-07	5.2E-08			
13	Nitrate, nitra	9.5E-04	3.9E-06	2.9E-05			
14	Acenaphthene	1.4E-07	NA	4.1E-09			
15	Acenaphthylene	1.1E-07	NA	3.3E-09			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.5E-06	NA	4.5E-08			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	0.0E+00	NA	0.0E+00			
22	Chrysene	7.4E-07	NA	2.2E-08			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.2E-05	NA	3.5E-07			
25	Fluorene	2.2E-07	NA	6.7E-09			
26	Methylnaphthal	2.0E-08	NA	5.9E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	8.6E-06	NA	2.6E-07			
29	Pyrene	3.3E-06	NA	1.0E-07			
30	Bis (2-ethylhe	1.4E-04	NA	4.2E-06			
31	Butylbenzyl ph	6.4E-05	NA	1.9E-06			
32	Di-n-butyl pht	5.9E-06	NA	1.8E-07			
33	Di-n-octyl pht	1.9E-05	NA	5.8E-07			
34	Aldrin	1.9E-08	7.5E-10	5.6E-10			
35	Alpha-Endosulf	8.4E-08	3.4E-09	2.5E-09			
36	Beta-Endosulfa	2.2E-07	8.9E-09	6.5E-09			
37	DDD, 4,4'-	3.0E-07	1.2E-08	8.9E-09			
38	DDE, 4,4'-	3.8E-07	1.5E-08	1.1E-08			
39	DDT, 4,4'-	1.5E-06	5.9E-08	4.4E-08			
40	Dieldrin	3.2E-07	1.3E-08	9.7E-09			
41	Endrin	7.1E-07	2.9E-08	2.1E-08			
42	Gamma-BHC (Lin	4.3E-07	1.8E-08	1.3E-08			
43	Heptachlor	1.3E-07	5.2E-09	3.9E-09			
44	Heptachlor epo	1.0E-07	4.3E-09	3.1E-09			
45	Methoxychlor	8.0E-07	NA	2.4E-08			
46	PCB 1254	6.8E-08	1.7E-08	2.0E-09			
47	PCB 1260	1.5E-07	3.6E-08	4.5E-09			

CHRONIC RISK SUMMARY

FUTURE
RESIDENT 311

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS1)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
3E-02	1E-03	NA	0E+00	0E+00	0E+00
8E-03	3E-05	NA			
5E-03	2E-04	7E-02			
5E-05	4E-05	NA			
4E-02	7E-02	NA			
5E-02	4E-03	NA			
NA	NA	NA			
4E-03	8E-04	NA			
1E-02	NA	NA			
5E-04	4E-04	NA			
9E-03	4E-03	NA			
9E-05	1E-05	3E-05			
1E 02	4E-05	NA			
2E-06	NA	NA			
3E-06	NA	NA			
0E+00	NA	NA			
4E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
2E-05	NA	NA			
0E+00	NA	NA			
3E-04	NA	NA			
6E-06	NA	NA			
5E-07	NA	NA			
0E+00	NA	NA			
3E-04	NA	NA			
1E-04	NA	NA			
7E-03	NA	NA			
3E-04	NA	NA			
6E-05	NA	NA			
1E-03	NA	NA			
6E-04	3E-05	NA			
2E-03	7E-05	NA			
4E-03	2E-04	NA			
NA	NA	NA			
NA	NA	NA			
3E 03	1E-04	NA			
6E-03	3E-04	NA			
2E-03	1E-04	NA			
1E-03	6E-05	NA			
3E-04	1E-05	NA			
8E-03	3E-04	NA			
2E-04	NA	NA			
1E-03	2E-04	NA			
2E-03	5E-04	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	NA			
49 RDX	1.0E-04	4.0E-06	3.0E-06		3E-02	1E-03	NA			
				PATHWAY SUM (HI)	2E-01	8E-02	7E-02	0E+00	0E+00	0E+00
				POPULATION TOTAL	4E-01					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RESIDENT 311

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.4E-06	2.2E-08	7.1E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	4.0E-07	3.7E-09	1.2E-08			
3	Barium	5.5E-05	5.2E-07	1.6E-06			
4	Beryllium	4.4E-08	4.1E-10	1.3E-09			
5	Cadmium (food	7.5E-06	7.1E-07	2.2E-07			
6	Chromium (VI)	4.0E-05	3.8E-07	1.2E-06			
7	Lead and Compo	1.7E-04	9.4E-06	5.0E-06			
8	Mercury, inorg	1.9E-07	1.8E-09	5.8E-09			
9	Nickel	3.3E-05	NA	9.9E-07			
10	Silver	3.9E-07	3.7E-08	1.2E-08			
11	Vanadium	1.1E-05	1.0E-07	3.2E-07			
12	Cyanide (free)	2.9E-07	8.4E-08	8.8E-09			
13	Nitrate, nitra	1.6E-04	1.5E-06	4.9E-06			
14	Acenaphthene	2.3E-08	NA	7.0E-10			
15	Acenaphthylene	1.9E-08	NA	5.7E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.6E-07	NA	7.7E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	0.0E+00	NA	0.0E+00			
22	Chrysene	1.3E-07	NA	3.8E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	2.0E-06	NA	5.9E-08			
25	Fluorene	3.8E-08	NA	1.1E-09			
26	Methylnaphthal	3.4E-09	NA	1.0E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.5E-06	NA	4.4E-08			
29	Pyrene	5.7E-07	NA	1.7E-08			
30	Bis (2-ethylhe	2.4E-05	NA	7.1E-07			
31	Butylbenzyl ph	1.1E-05	NA	3.3E-07			
32	Di-n-butyl pht	1.0E-06	NA	3.0E-08			
33	Di-n-octyl pht	3.3E-06	NA	9.9E-08			
34	Aldrin	3.2E-09	3.0E-10	9.5E-11			
35	Alpha-Endosulf	1.4E-08	1.3E-09	4.3E-10			
36	Beta-Endosulfa	3.7E-08	3.5E-09	1.1E-09			
37	DDD, 4,4'-	5.0E-08	4.8E-09	1.5E-09			
38	DDE, 4,4'-	6.5E-08	6.1E-09	1.9E-09			
39	DDT, 4,4'-	2.5E-07	2.3E-08	7.5E-09			
40	Dieldrin	5.5E-08	5.2E-09	1.6E-09			
41	Endrin	1.2E-07	1.1E-08	3.6E-09			
42	Gamma-BHC (Lin	7.3E-08	6.9E-09	2.2E-09			
43	Heptachlor	2.2E-08	2.1E-09	6.6E-10			
44	Heptachlor epo	1.8E-08	1.7E-09	5.4E-10			
45	Methoxychlor	1.4E-07	NA	4.1E-09			
46	PCB 1254	1.2E-08	6.6E-09	3.5E-10			
47	PCB 1260	2.5E-08	1.4E-08	7.6E-10			

LIFETIME RISK SUMMARY

FUTURE
RESIDENT 311

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
7E-07	7E-09	2E-07			
NA	NA	NA			
2E-07	4E-07	1E-08			
NA	NA	1E-06			
NA	NA	5E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	8E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-06	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
0E+00	NA	NA			
9E-07	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
3E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
5E-08	5E-09	2E-09			
NA	NA	NA			
NA	NA	NA			
1E-08	1E-09	NA			
2E-08	2E-09	NA			
8E-08	8E-09	3E-09			
9E-07	8E-08	3E-08			
NA	NA	NA			
1E-07	9E-09	NA			
1E-07	9E-09	3E-09			
2E-07	2E-08	5E-09			
NA	NA	NA			
9E-08	5E-08	NA			
2E-07	1E-07	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	NA			
49 RDX	1.7E-05	1.6E-08	5.1E-07		2E-06	2E-07	NA			
				TOTAL PATHWAY CANCER RISK	8E-06	9E-07	5E-05	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	6E-05					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP5
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
COMM. WORKER 311

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.4E-07	2.3E-08	4.6E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	4.0E-08	3.8E-09	7.7E-09			
3	Barium	5.5E-06	5.2E-07	1.1E-06			
4	Beryllium	4.4E-09	4.2E-10	8.4E-10			
5	Cadmium (food	7.5E-07	7.1E-07	1.4E-07			
6	Chromium (VI)	4.1E-06	3.8E-07	7.8E-07			
7	Lead and Compo	1.7E-05	9.5E-06	3.2E-06			
8	Mercury, inorg	1.9E-08	1.8E-09	3.7E-09			
9	Nickel	3.3E-06	NA	6.4E-07			
10	Silver	3.9E-08	3.7E-08	7.6E-09			
11	Vanadium	1.1E-06	1.0E-07	2.1E-07			
12	Cyanide (free)	3.0E-08	8.4E-08	5.7E-09			
13	Nitrate, nitra	1.6E-05	1.5E-06	3.1E-06			
14	Acenaphthene	2.4E-09	NA	4.5E-10			
15	Acenaphthylene	1.9E-09	NA	3.7E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.6E-08	NA	5.0E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) flue	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) flue	0.0E+00	NA	0.0E+00			
22	Chrysene	1.3E-08	NA	2.4E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	2.0E-07	NA	3.8E-08			
25	Fluorene	3.8E-09	NA	7.3E-10			
26	Methylnaphthal	3.4E-10	NA	6.5E-11			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.5E-07	NA	2.8E-08			
29	Pyrene	5.7E-08	NA	1.1E-08			
30	Bis (2-ethylhe	2.4E-06	NA	4.6E-07			
31	Butylbenzyl ph	1.1E-06	NA	2.1E-07			
32	Di-n-butyl pht	1.0E-07	NA	1.9E-08			
33	Di-n-octyl pht	3.3E-07	NA	6.4E-08			
34	Aldrin	3.2E-10	3.0E-10	6.1E-11			
35	Alpha-Endosulf	1.4E-09	1.4E-09	2.8E-10			
36	Beta-Endosulfa	3.7E-09	3.5E-09	7.2E-10			
37	DDD, 4,4'-	5.1E-09	4.8E-09	9.8E-10			
38	DDE, 4,4'-	6.5E-09	6.2E-09	1.3E-09			
39	DDT, 4,4'-	2.5E-08	2.4E-08	4.8E-09			
40	Dieldrin	5.5E-09	5.2E-09	1.1E-09			
41	Endrin	1.2E-08	1.2E-08	2.3E-09			
42	Gamma-BHC (Lin	7.4E-09	7.0E-09	1.4E-09			
43	Heptachlor	2.2E-09	2.1E-09	4.2E-10			
44	Heptachlor epo	1.8E-09	1.7E-09	3.5E-10			
45	Methoxychlor	1.4E-08	NA	2.6E-09			
46	PCB 1254	1.2E-09	6.6E-09	2.2E-10			
47	PCB 1260	2.6E-09	1.4E-08	4.9E-10			

CHRONIC RISK SUMMARY

FUTURE
COMM. WORKER 311

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-04	6E-04	NA	0E+00	0E+00	0E+00
1E-04	1E-05	NA			
8E-05	7E-05	8E-03			
9E-07	2E-05	NA			
8E-04	3E-02	NA			
8E-04	2E-03	NA			
NA	NA	NA			
6E-05	3E-04	NA			
2E-04	NA	NA			
8E-06	1E-04	NA			
2E-04	1E-03	NA			
1E-06	4E-06	3E-06			
2E-04	2E-05	NA			
4E-08	NA	NA			
5E-08	NA	NA			
0E+00	NA	NA			
6E-07	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
3E-07	NA	NA			
0E+00	NA	NA			
5E-06	NA	NA			
1E-07	NA	NA			
8E-09	NA	NA			
0E+00	NA	NA			
5E-06	NA	NA			
2E-06	NA	NA			
1E-04	NA	NA			
5E-06	NA	NA			
1E-06	NA	NA			
2E-05	NA	NA			
1E-05	1E-05	NA			
3E-05	3E-05	NA			
7E-05	7E-05	NA			
NA	NA	NA			
NA	NA	NA			
5E-05	5E-05	NA			
1E-04	1E-04	NA			
4E-05	4E-05	NA			
2E-05	2E-05	NA			
4E-06	4E-06	NA			
1E-04	1E-04	NA			
3E-06	NA	NA			
2E-05	1E-04	NA			
4E-05	2E-04	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	NA		
49 RDX	1.7E-06	1.6E-06	3.3E-07		6E-04	5E-04	NA		
				PATHWAY SUM (HI)	4E-03	4E-02	8E-03	0E+00	0E+00	0E+00
				POPULATION TOTAL	5E-02					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP5
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
COMM. WORKER 311

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	8.5E-08	8.0E-09	1.6E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.4E-08	1.3E-09	2.7E-09			
3	Barium	2.0E-06	1.9E-07	3.8E-07			
4	Beryllium	1.6E-09	1.5E-10	3.0E-10			
5	Cadmium (food	2.7E-07	2.5E-07	5.1E-08			
6	Chromium (VI)	1.4E-06	1.4E-07	2.8E-07			
7	Lead and Compo	6.0E-06	3.4E-06	1.1E-06			
8	Mercury, inorg	6.9E-09	6.5E-10	1.3E-09			
9	Nickel	1.2E-06	NA	2.3E-07			
10	Silver	1.4E-08	1.3E-08	2.7E-09			
11	Vanadium	3.9E-07	3.7E-08	7.6E-08			
12	Cyanide (free)	1.1E-08	3.0E-08	2.0E-09			
13	Nitrate, nitra	5.8E-06	5.5E-07	1.1E-06			
14	Acenaphthene	8.4E-10	NA	1.6E-10			
15	Acenaphthylene	6.8E-10	NA	1.3E-10			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	9.3E-09	NA	1.8E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	0.0E+00	NA	0.0E+00			
22	Chrysene	4.5E-09	NA	8.7E-10			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	7.0E-08	NA	1.4E-08			
25	Fluorene	1.4E-09	NA	2.6E-10			
26	Methylnaphthal	1.2E-10	NA	2.3E-11			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	5.3E-08	NA	1.0E-08			
29	Pyrene	2.0E-08	NA	3.9E-09			
30	Bis (2-ethylhe	8.5E-07	NA	1.6E-07			
31	Butylbenzyl ph	3.9E-07	NA	7.5E-08			
32	Di-n-butyl pht	3.6E-08	NA	6.9E-09			
33	Di-n-octyl pht	1.2E-07	NA	2.3E-08			
34	Aldrin	1.1E-10	1.1E-10	2.2E-11			
35	Alpha-Endosulf	5.1E-10	4.8E-10	9.8E-11			
36	Beta-Endosulfa	1.3E-09	1.3E-09	2.6E-10			
37	DDD, 4,4'-	1.8E-09	1.7E-09	3.5E-10			
38	DDE, 4,4'-	2.3E-09	2.2E-09	4.5E-10			
39	DDT, 4,4'-	8.9E-09	8.5E-09	1.7E-09			
40	Dieldrin	2.0E-09	1.9E-09	3.8E-10			
41	Endrin	4.4E-09	4.1E-09	8.4E-10			
42	Gamma-BHC (Lin	2.6E-09	2.5E-09	5.1E-10			
43	Heptachlor	7.9E-10	7.4E-10	1.5E-10			
44	Heptachlor epo	6.4E-10	6.1E-10	1.2E-10			
45	Methoxychlor	4.9E-09	NA	9.4E-10			
46	PCB 1254	4.2E-10	2.4E-09	8.0E-11			
47	PCB 1260	9.1E-10	5.2E-09	1.8E-10			

LIFETIME RISK SUMMARY

FUTURE
COMM. WORKER 311

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 311 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
2E-08	2E-09	4E-08			
NA	NA	NA			
7E-09	1E-07	3E-09			
NA	NA	3E-07			
NA	NA	1E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	2E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
7E-08	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
0E+00	NA	NA			
3E-08	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-09	2E-09	4E-10			
NA	NA	NA			
NA	NA	NA			
4E-10	4E-10	NA			
8E-10	7E-10	NA			
3E-09	3E-09	6E-10			
3E-08	3E-08	6E-09			
NA	NA	NA			
3E-09	3E-09	NA			
4E-09	3E-09	7E-10			
6E-09	6E-09	1E-09			
NA	NA	NA			
3E-09	2E-08	NA			
7E-09	4E-08	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00		0E+00	0E+00	NA			
49 RDX	6.1E-07	5.8E-07	1.2E-07		7E-08	6E-08	NA			
				TOTAL PATHWAY CANCER RISK	3E-07	3E-07	1E-05	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	1E-05					

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP6
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 311

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.4E-07	9.5E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	4.0E-08	1.6E-07				
3	Barium	5.5E-06	2.2E-05				
4	Beryllium	4.4E-09	1.8E-08				
5	Cadmium (food	7.5E-07	3.0E-06				
6	Chromium (VI)	4.1E-06	1.6E-05				
7	Lead and Compo	1.7E-05	6.7E-05				
8	Mercury, inorg	1.9E-08	7.7E-08				
9	Nickel	3.3E-06	1.3E-05				
10	Silver	3.9E-08	1.6E-07				
11	Vanadium	1.1E-06	4.4E-06				
12	Cyanide (free)	3.0E-08	1.2E-07				
13	Nitrate, nitra	1.6E-05	6.5E-05				
14	Acenaphthene	2.4E-09	9.4E-09				
15	Acenaphthylene	1.9E-09	7.6E-09				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	2.6E-08	1.0E-07				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) fluo	0.0E+00	0.0E+00				
22	Chrysene	1.3E-08	5.1E-08				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	2.0E-07	7.9E-07				
25	Fluorene	3.8E-09	1.5E-08				
26	Methylnaphthal	3.4E-10	1.4E-09				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	1.5E-07	5.9E-07				
29	Pyrene	5.7E-08	2.3E-07				
30	Bis (2-ethylhe	2.4E-06	9.5E-06				
31	Butylbenzyl ph	1.1E-06	4.4E-06				
32	Di-n-butyl pht	1.0E-07	4.0E-07				
33	Di-n-octyl pht	3.3E-07	1.3E-06				
34	Aldrin	3.2E-10	1.3E-09				
35	Alpha-Endosulf	1.4E-09	5.7E-09				
36	Beta-Endosulfa	3.7E-09	1.5E-08				
37	DDD, 4,4'-	5.1E-09	2.0E-08				
38	DDE, 4,4'-	6.5E-09	2.6E-08				
39	DDT, 4,4'-	2.5E-08	1.0E-07				
40	Dieldrin	5.5E-09	2.2E-08				
41	Endrin	1.2E-08	4.9E-08				
42	Gamma-BHC (Lin	7.4E-09	3.0E-08				
43	Heptachlor	2.2E-09	8.8E-09				
44	Heptachlor epo	1.8E-09	7.2E-09				
45	Methoxychlor	1.4E-08	5.5E-08				
46	PCB 1254	1.2E-09	4.7E-09				
47	PCB 1260	2.6E-09	1.0E-08				

SUBCHRONIC RISK SUMMARY

FUTURE
RENOV. WORKER 311

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-04	NA	0E+00	0E+00	0E+00	0E+00
1E-04	NA				
8E-05	2E-02				
9E-07	NA				
NA	NA				
2E-04	1E+01				
NA	NA				
6E-05	NA				
2E-04	NA				
8E-06	NA				
2E-04	NA				
1E-06	4E-04				
2E-04	NA				
4E-09	NA				
5E-08	NA				
0E+00	NA				
6E-07	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
3E-07	NA				
0E+00	NA				
5E-07	NA				
1E-08	NA				
8E-09	NA				
0E+00	NA				
5E-07	NA				
2E-07	NA				
1E-04	NA				
5E-07	NA				
1E-07	NA				
2E-05	NA				
1E-05	NA				
7E-06	NA				
2E-05	NA				
NA	NA				
NA	NA				
5E-05	NA				
1E-04	NA				
4E-05	NA				
2E-06	NA				
4E-06	NA				
1E-04	NA				
3E-06	NA				
2E-05	NA				
4E-05	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00			0E+00	NA						
49 RDX	1.7E-06	6.8E-06			6E-04	NA						
				PATHWAY SUM (HI)	3E-03	1E+01	0E+00	0E+00	0E+00	0E+00		
				POPULATION TOTAL	1E+01							

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP6
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 311

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.4E-09	1.4E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	8.7E-10	2.3E-09				
3	Barium	7.9E-08	3.1E-07				
4	Beryllium	8.3E-11	2.5E-10				
5	Cadmium (food	1.1E-08	4.3E-08				
6	Chromium (VI)	5.8E-08	2.3E-07				
7	Lead and Compo	2.4E-07	9.6E-07				
8	Mercury, inorg	2.8E-10	1.1E-09				
9	Nickel	4.8E-08	1.9E-07				
10	Silver	5.6E-10	2.3E-09				
11	Vanadium	1.6E-08	8.2E-08				
12	Cyanide (free)	4.2E-10	1.7E-09				
13	Nitrate, nitra	2.3E-07	9.3E-07				
14	Acenaphthene	3.4E-11	1.3E-10				
15	Acenaphthylene	2.7E-11	1.1E-10				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	3.7E-10	1.5E-09				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) fluo	0.0E+00	0.0E+00				
22	Chrysene	1.6E-10	7.3E-10				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	2.8E-09	1.1E-08				
25	Fluorene	5.5E-11	2.2E-10				
26	Methylnaphthal	4.8E-12	1.9E-11				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	2.1E-09	8.5E-09				
29	Pyrene	8.2E-10	3.3E-09				
30	Bis (2-ethylhe	3.4E-08	1.4E-07				
31	Butylbenzyl ph	1.6E-08	6.3E-08				
32	Di-n-butyl pht	1.4E-09	5.8E-09				
33	Di-n-octyl pht	4.7E-09	1.9E-08				
34	Aldrin	4.5E-12	1.8E-11				
35	Alpha-Endosulf	2.0E-11	8.2E-11				
36	Beta-Endosulfa	8.3E-11	2.1E-10				
37	DDD, 4,4'-	7.3E-11	2.9E-10				
38	DDE, 4,4'-	9.3E-11	3.7E-10				
39	DDT, 4,4'-	3.6E-10	1.4E-09				
40	Dieldrin	7.9E-11	3.2E-10				
41	Endrin	1.7E-10	7.0E-10				
42	Gamma-BHC (Lin	1.1E-10	4.2E-10				
43	Heptachlor	3.1E-11	1.3E-10				
44	Heptachlor epo	2.6E-11	1.0E-10				
45	Methoxychlor	2.0E-10	7.8E-10				
46	PCB 1254	1.7E-11	6.7E-11				
47	PCB 1260	3.6E-11	1.5E-10				

LIFETIME RISK SUMMARY

FUTURE
RENOV. WORKER 311

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 311 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 311 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
1E-09	3E-08				
NA	NA				
3E-10	2E-09				
NA	3E-07				
NA	1E-05				
NA	NA				
NA	NA				
NA	2E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
3E-09	NA				
0E+00	NA				
0E+00	NA				
NA	NA				
0E+00	NA				
1E-09	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
5E-10	NA				
NA	NA				
NA	NA				
NA	NA				
8E-11	3E-10				
NA	NA				
NA	NA				
2E-11	NA				
3E-11	NA				
1E-10	5E-10				
1E-09	5E-09				
NA	NA				
1E-10	NA				
1E-10	6E-10				
2E-10	9E-10				
NA	NA				
1E-10	NA				
3E-10	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00			0E+00	NA					
49 RDX	2.4E-08	9.7E-08			3E-09	NA					
			TOTAL PATHWAY CANCER RISK		1E-08	1E-05	0E+00	0E+00	0E+00	0E+00	
			POPULATION TOTAL EXCESS RISK		1E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP7
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 312

		SUBCHRONIC DAILY INTAKE (mg/kg/day)					
		SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
		BLDG 312	BLDG 312	BLDG 312	0	0	0
		INTERIOR RE	INTERIOR RE	INDOOR AIR	0	0	0
		ORAL	DERMAL	INHALATION	0	0	0
	CHEMICAL NAME	(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
1	Antimony	2.0E-05	5.7E-08	5.9E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	7.6E-06	2.2E-08	2.3E-07			
3	Barium	3.3E-04	9.5E-07	9.8E-06			
4	Beryllium	1.2E-04	3.4E-07	3.5E-06			
5	Cadmium (food	9.0E-04	2.6E-05	2.7E-05			
6	Chromium (VI)	3.4E-04	9.9E-07	1.0E-05			
7	Lead and Compo	2.3E-03	4.0E-05	6.9E-05			
8	Mercury, inorg	1.8E-06	5.1E-09	5.3E-08			
9	Nickel	3.3E-04	NA	1.0E-05			
10	Silver	1.8E-05	5.3E-07	5.5E-07			
11	Vanadium	2.7E-05	8.0E-08	8.2E-07			
12	Cyanide (free)	1.4E-04	1.2E-05	4.2E-06			
13	Nitrate, nitra	5.6E-04	1.6E-06	1.7E-05			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.4E-07	NA	4.2E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	1.6E-07	NA	4.7E-09			
20	Benzo (g,h,i)	1.9E-07	NA	5.8E-09			
21	Benzo (k) fluo	4.7E-07	NA	1.4E-08			
22	Chrysene	7.8E-08	NA	2.3E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	6.9E-07	NA	2.1E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	0.0E+00	NA	0.0E+00			
27	Naphthalene	1.4E-06	NA	4.1E-08			
28	Phenanthrene	1.3E-06	NA	4.0E-08			
29	Pyrene	5.1E-07	NA	1.5E-08			
30	Bis (2-ethylhe	2.5E-04	NA	7.8E-06			
31	Butylbenzyl ph	1.9E-04	NA	5.8E-06			
32	Di-n-butyl pht	6.3E-05	NA	1.9E-06			
33	Di-n-octyl pht	3.1E-05	NA	9.3E-07			
34	Aldrin	3.5E-07	1.0E-08	1.0E-08			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	9.9E-08	2.9E-09	3.0E-09			
37	DDD, 4,4'-	5.3E-08	1.6E-09	1.6E-09			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	4.6E-07	1.4E-08	1.4E-08			
40	Dieldrin	1.6E-07	4.6E-09	4.8E-09			
41	Endrin	3.6E-07	1.0E-08	1.1E-08			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	2.2E-08	6.5E-10	6.7E-10			
45	Methoxychlor	1.1E-06	NA	3.2E-08			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	4.8E-06	8.5E-07	1.5E-07			

SUBCHRONIC RISK SUMMARY

FUTURE
RESIDENT 312

SUBCHRONIC HAZARD QUOTIENT					
SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4	SCENARIO 5	SCENARIO 6
BLDG 312	BLDG 312	BLDG 312	0	0	0
INTERIOR RE	INTERIOR RE	INDOOR AIR	0	0	0
ORAL	DERMAL	INHALATION	0	0	0
(FROM WS1)	(FROM WS2)	(FROM WS3)	(FROM WS4)	(FROM WS5)	(FROM WS6)
5E-02	1E-03	NA	0E+00	0E+00	0E+00
3E-02	8E-05	NA			
5E-03	1E-04	7E-03			
2E-02	1E-02	NA			
NA	NA	NA			
2E-02	1E-03	9E+00			
NA	NA	NA			
6E-03	9E-04	NA			
2E-02	NA	NA			
4E-03	2E-03	NA			
4E-03	1E-03	NA			
7E-03	6E-04	1E-02			
6E-03	2E-05	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
4E-06	NA	NA			
0E+00	NA	NA			
4E-06	NA	NA			
5E-06	NA	NA			
1E-05	NA	NA			
2E-06	NA	NA			
0E+00	NA	NA			
2E-06	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
3E-05	NA	NA			
4E-06	NA	NA			
2E-06	NA	NA			
1E-02	NA	NA			
1E-04	NA	NA			
6E-05	NA	NA			
2E-03	NA	NA			
1E-02	3E-04	NA			
0E+00	0E+00	NA			
5E-04	1E-05	NA			
NA	NA	NA			
NA	NA	NA			
9E-04	3E-05	NA			
3E-03	9E-05	NA			
1E-03	3E-05	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
2E-03	5E-05	NA			
2E-04	NA	NA			
0E+00	0E+00	NA			
7E-02	1E-02	NA			

48 Dinitrotoluene	3.0E-07	8.0E-09	9.0E-09							
49 RDX	3.7E-05	1.1E-06	1.1E-06							
					2E-04	4E-06	NA			
					1E-02	4E-04	NA			
				PATHWAY SUM (HI)	3E-01	3E-02	9E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	9E+00					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP7
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 312

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.2E-05	8.0E-08	3.7E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	4.7E-06	1.9E-08	1.4E-07			
3	Barium	2.0E-04	8.2E-07	6.1E-06			
4	Beryllium	7.2E-05	2.9E-07	2.2E-06			
5	Cadmium (food	5.6E-04	2.3E-05	1.7E-05			
6	Chromium (VI)	2.1E-04	8.6E-07	6.4E-06			
7	Lead and Compo	1.4E-03	3.5E-05	4.3E-05			
8	Mercury, inorg	1.1E-06	4.5E-09	3.3E-08			
9	Nickel	2.1E-04	NA	6.2E-06			
10	Silver	1.1E-05	4.6E-07	3.4E-07			
11	Vanadium	1.7E-05	6.9E-08	5.1E-07			
12	Cyanide (free)	8.8E-05	1.1E-05	2.7E-06			
13	Nitrate, nitra	3.5E-04	1.4E-06	1.1E-05			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	8.8E-08	NA	2.6E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	9.7E-08	NA	2.9E-09			
20	Benzo (g,h,i)	1.2E-07	NA	3.6E-09			
21	Benzo (k) fluo	2.9E-07	NA	8.7E-09			
22	Chrysene	4.9E-08	NA	1.5E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	4.3E-07	NA	1.3E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	0.0E+00	NA	0.0E+00			
27	Naphthalene	8.5E-07	NA	2.6E-08			
28	Phenanthrene	8.4E-07	NA	2.5E-08			
29	Pyrene	3.2E-07	NA	9.6E-09			
30	Bis (2-ethylhe	1.6E-04	NA	4.8E-06			
31	Butylbenzyl ph	1.2E-04	NA	3.6E-06			
32	Di-n-butyl pht	3.9E-05	NA	1.2E-06			
33	Di-n-octyl pht	1.9E-05	NA	5.8E-07			
34	Aldrin	2.2E-07	8.8E-09	6.5E-09			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	6.2E-08	2.5E-09	1.9E-09			
37	DDD, 4,4'-	3.3E-08	1.4E-09	1.0E-09			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	2.9E-07	1.2E-08	8.7E-09			
40	Dieldrin	9.9E-08	4.0E-09	3.0E-09			
41	Endrin	2.2E-07	9.1E-09	6.7E-09			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	1.4E-08	5.7E-10	4.2E-10			
45	Methoxychlor	6.6E-07	NA	2.0E-08			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	3.0E-06	7.4E-07	9.1E-08			

CHRONIC RISK SUMMARY

FUTURE
RESIDENT 312

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
3E-02	1E-03	NA	0E+00	0E+00	0E+00
2E-02	7E-05	NA			
3E-03	1E-04	4E-02			
1E-02	1E-02	NA			
6E-01	9E-01	NA			
4E-02	3E-03	NA			
NA	NA	NA			
4E-03	7E-04	NA			
1E-02	NA	NA			
2E-03	2E-03	NA			
2E-03	1E-03	NA			
4E-03	5E-04	1E-03			
4E-03	1E-05	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
2E-06	NA	NA			
0E+00	NA	NA			
2E-06	NA	NA			
3E-06	NA	NA			
7E-06	NA	NA			
1E-06	NA	NA			
0E+00	NA	NA			
1E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
2E-05	NA	NA			
3E-05	NA	NA			
1E-05	NA	NA			
8E-03	NA	NA			
6E-04	NA	NA			
4E-04	NA	NA			
1E-03	NA	NA			
7E-03	3E-04	NA			
0E+00	0E+00	NA			
1E-03	5E-05	NA			
NA	NA	NA			
NA	NA	NA			
6E-04	2E-05	NA			
2E-03	8E-05	NA			
7E-04	3E-05	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
1E-03	4E-05	NA			
1E-04	NA	NA			
0E+00	0E+00	NA			
4E-02	1E-02	NA			

48 Dinitrotoluene	1.9E-07	7.6E-09	5.8E-09						
49 RDX	2.3E-05	9.4E-07	6.9E-07						
				9E-05	4E-06	NA			
				8E-03	3E-04	NA			
			PATHWAY SUM (HI)	8E-01	9E-01	4E-02	0E+00	0E+00	0E+00
			POPULATION TOTAL	2E+00					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP7
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RESIDENT 312

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.1E-08	2.0E-08	6.3E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	8.1E-07	7.6E-09	2.4E-08			
3	Barium	3.8E-05	3.3E-07	1.0E-06			
4	Beryllium	1.2E-05	1.2E-07	3.7E-07			
5	Cadmium (food	9.5E-05	9.0E-06	2.9E-06			
6	Chromium (VI)	3.6E-05	3.4E-07	1.1E-06			
7	Lead and Compo	2.4E-04	1.4E-05	7.3E-06			
8	Mercury, inorg	1.9E-07	1.8E-09	5.8E-09			
9	Nickel	3.5E-05	NA	1.1E-06			
10	Silver	1.9E-06	1.8E-07	5.8E-08			
11	Vanadium	2.9E-06	2.7E-08	8.7E-08			
12	Cyanide (free)	1.5E-05	4.3E-06	4.5E-07			
13	Nitrate, nitra	6.0E-05	5.7E-07	1.8E-06			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.5E-08	NA	4.5E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	1.7E-08	NA	5.0E-10			
20	Benzo (g,h,i)	2.1E-08	NA	6.2E-10			
21	Benzo (k) fluo	8.0E-08	NA	1.5E-09			
22	Chrysene	8.3E-09	NA	2.5E-10			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	7.3E-08	NA	2.2E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	0.0E+00	NA	0.0E+00			
27	Naphthalene	1.4E-07	NA	4.3E-09			
28	Phenanthrene	1.4E-07	NA	4.3E-09			
29	Pyrene	5.5E-08	NA	1.6E-09			
30	Bis (2-ethylhe	2.7E-05	NA	8.1E-07			
31	Butylbenzyl ph	2.1E-05	NA	6.2E-07			
32	Di-n-butyl pht	6.7E-06	NA	2.0E-07			
33	Di-n-octyl pht	3.3E-06	NA	9.9E-08			
34	Aldrin	3.7E-08	3.5E-09	1.1E-09			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	1.1E-08	9.9E-10	3.2E-10			
37	DDD, 4,4'-	5.7E-09	5.4E-10	1.7E-10			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	4.9E-08	4.7E-09	1.5E-09			
40	Dieldrin	1.7E-08	1.6E-09	5.1E-10			
41	Endrin	3.8E-08	3.6E-09	1.1E-09			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	2.4E-09	2.2E-10	7.1E-11			
45	Methoxychlor	1.1E-07	NA	3.4E-09			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	5.2E-07	2.9E-07	1.5E-08			

LIFETIME RISK SUMMARY

FUTURE
RESIDENT 312

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
1E-06	1E-08	4E-07			
NA	NA	NA			
5E-05	1E-04	3E-06			
NA	NA	2E-05			
NA	NA	5E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	9E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-07	NA	NA			
0E+00	NA	NA			
1E-07	NA	NA			
NA	NA	NA			
4E-07	NA	NA			
6E-08	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
4E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
6E-07	6E-08	2E-08			
NA	NA	NA			
NA	NA	NA			
1E-09	1E-10	NA			
0E+00	0E+00	NA			
2E-08	2E-09	8E-10			
3E-07	3E-08	8E-09			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
2E-08	2E-09	6E-10			
NA	NA	NA			
0E+00	0E+00	NA			
4E-06	2E-06	NA			

48 Dinitrotoluene	3.2E-08	3.0E-09	9.6E-10								
49 RDX	3.9E-06	3.7E-07	1.2E-07								
					2E-08	2E-09	NA				
					4E-07	4E-08	NA				
				TOTAL PATHWAY CANCER RISK	6E-05	1E-04	7E-05	0E+00	0E+00	0E+00	
				POPULATION TOTAL EXCESS RISK	2E-04						

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP8
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
COMM. WORKER 312

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.1E-07	2.0E-08	4.0E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	8.1E-08	7.7E-09	1.6E-08			
3	Barium	3.8E-06	3.3E-07	6.7E-07			
4	Beryllium	1.2E-06	1.2E-07	2.4E-07			
5	Cadmium (food	9.6E-06	9.1E-06	1.8E-06			
6	Chromium (VI)	3.6E-06	3.4E-07	7.0E-07			
7	Lead and Compo	2.5E-05	1.4E-05	4.7E-06			
8	Mercury, inorg	1.9E-08	1.8E-09	3.6E-09			
9	Nickel	3.6E-06	NA	6.8E-07			
10	Silver	2.0E-07	1.8E-07	3.8E-08			
11	Vanadium	2.9E-07	2.8E-08	5.6E-08			
12	Cyanide (free)	1.5E-06	4.3E-06	2.9E-07			
13	Nitrate, nitre	6.0E-06	5.7E-07	1.2E-06			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.5E-09	NA	2.9E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	1.7E-09	NA	3.2E-10			
20	Benzo (g,h,i)	2.1E-09	NA	4.0E-10			
21	Benzo (k) fluo	5.0E-09	NA	9.6E-10			
22	Chrysene	8.3E-10	NA	1.6E-10			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	7.4E-09	NA	1.4E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	0.0E+00	NA	0.0E+00			
27	Naphthalene	1.5E-08	NA	2.8E-09			
28	Phenanthrene	1.4E-08	NA	2.8E-09			
29	Pyrene	5.5E-09	NA	1.1E-09			
30	Bis (2-ethylhe	2.7E-06	NA	5.2E-07			
31	Butylbenzyl ph	2.1E-06	NA	4.0E-07			
32	Di-n-butyl pht	6.7E-07	NA	1.3E-07			
33	Di-n-octyl pht	3.3E-07	NA	6.4E-08			
34	Aldrin	3.7E-09	3.5E-09	7.1E-10			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	1.1E-09	1.0E-09	2.0E-10			
37	DDD, 4,4'-	5.7E-10	5.4E-10	1.1E-10			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	5.0E-09	4.7E-09	9.5E-10			
40	Dieldrin	1.7E-09	1.6E-09	3.3E-10			
41	Endrin	3.8E-09	3.6E-09	7.3E-10			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	2.4E-10	2.3E-10	4.6E-11			
45	Methoxychlor	1.1E-08	NA	2.2E-09			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	5.2E-08	2.9E-07	1.0E-08			

CHRONIC RISK SUMMARY

FUTURE
COMM. WORKER 312

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
5E-04	5E-04	NA	0E+00	0E+00	0E+00
3E-04	3E-05	NA			
5E-05	5E-05	5E-03			
2E-04	5E-03	NA			
1E-02	4E-01	NA			
7E-04	1E-03	NA			
NA	NA	NA			
6E-05	3E-04	NA			
2E-04	NA	NA			
4E-05	7E-04	NA			
4E-05	4E-04	NA			
8E-05	2E-04	1E-04			
6E-05	6E-06	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
4E-08	NA	NA			
0E+00	NA	NA			
4E-08	NA	NA			
5E-08	NA	NA			
1E-07	NA	NA			
2E-08	NA	NA			
0E+00	NA	NA			
2E-07	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
4E-07	NA	NA			
5E-07	NA	NA			
2E-07	NA	NA			
1E-04	NA	NA			
1E-05	NA	NA			
7E-06	NA	NA			
2E-05	NA	NA			
1E-04	1E-04	NA			
0E+00	0E+00	NA			
2E-05	2E-05	NA			
NA	NA	NA			
NA	NA	NA			
1E-05	9E-06	NA			
3E-05	3E-05	NA			
1E-05	1E-05	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
2E-05	2E-05	NA			
2E-06	NA	NA			
0E+00	0E+00	NA			
7E-04	4E-03	NA			

48 Dinitrotoluene	3.2E-09	3.0E-09	6.2E-10							
49 RDX	4.0E-07	3.8E-07	7.8E-08							
					2E-06	2E-06	NA			
					1E-04	1E-04	NA			
				PATHWAY SUM (HI)	1E-02	4E-01	5E-03	0E+00	0E+00	0E+00
				POPULATION TOTAL	4E-01					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP8
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
COMM. WORKER 312

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	7.5E-08	7.1E-09	1.4E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.9E-08	2.8E-09	5.6E-09			
3	Barium	1.2E-06	1.2E-07	2.4E-07			
4	Beryllium	4.4E-07	4.2E-08	8.5E-08			
5	Cadmium (food	3.4E-06	3.2E-06	6.6E-07			
6	Chromium (VI)	1.3E-06	1.2E-07	2.5E-07			
7	Lead and Compo	8.8E-06	8.0E-06	1.7E-06			
8	Mercury, inorg	6.7E-09	6.4E-10	1.3E-09			
9	Nickel	1.3E-06	NA	2.4E-07			
10	Silver	7.0E-08	6.6E-08	1.3E-08			
11	Vanadium	1.0E-07	9.9E-09	2.0E-08			
12	Cyanide (free)	5.4E-07	1.5E-06	1.0E-07			
13	Nitrate, nitra	2.2E-06	2.0E-07	4.1E-07			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	5.4E-10	NA	1.0E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	6.0E-10	NA	1.1E-10			
20	Benzo (g,h,i)	7.4E-10	NA	1.4E-10			
21	Benzo (k) fluo	1.8E-09	NA	3.4E-10			
22	Chrysene	3.0E-10	NA	5.7E-11			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	2.6E-09	NA	5.0E-10			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	0.0E+00	NA	0.0E+00			
27	Naphthalene	5.2E-09	NA	1.0E-09			
28	Phenanthrene	5.1E-09	NA	9.9E-10			
29	Pyrene	2.0E-09	NA	3.8E-10			
30	Bis (2-ethylhe	9.7E-07	NA	1.9E-07			
31	Butylbenzyl ph	7.4E-07	NA	1.4E-07			
32	Di-n-butyl pht	2.4E-07	NA	4.6E-08			
33	Di-n-octyl pht	1.2E-07	NA	2.3E-08			
34	Aldrin	1.3E-09	1.3E-09	2.6E-10			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	3.8E-10	3.6E-10	7.3E-11			
37	DDD, 4,4'-	2.0E-10	1.9E-10	3.9E-11			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	1.8E-09	1.7E-09	3.4E-10			
40	Dieldrin	6.1E-10	5.8E-10	1.2E-10			
41	Endrin	1.4E-09	1.3E-09	2.6E-10			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	8.5E-11	8.1E-11	1.6E-11			
45	Methoxychlor	4.1E-09	NA	7.8E-10			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	1.9E-08	1.1E-07	3.6E-09			

LIFETIME RISK SUMMARY

FUTURE
COMM. WORKER 312

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 312 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
5E-08	5E-09	8E-08			
NA	NA	NA			
2E-06	4E-05	7E-07			
NA	NA	4E-06			
NA	NA	1E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	2E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
4E-09	NA	NA			
0E+00	NA	NA			
4E-09	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
2E-09	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-08	2E-08	4E-09			
NA	NA	NA			
NA	NA	NA			
5E-11	5E-11	NA			
0E+00	0E+00	NA			
6E-10	6E-10	1E-10			
1E-08	9E-09	2E-09			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
8E-10	7E-10	1E-10			
NA	NA	NA			
0E+00	0E+00	NA			
1E-07	9E-07	NA			

48 Dinitrotoluene	1.1E-09	1.1E-09	2.2E-10								
49 RDX	1.4E-07	1.3E-07	2.7E-08								
					8E-10	7E-10	NA				
					2E-08	1E-08	NA				
				TOTAL PATHWAY CANCER RISK	2E-06	4E-05	1E-05	0E+00	0E+00	0E+00	
				POPULATION TOTAL EXCESS RISK	5E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP9
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 312

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.1E-07	8.4E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	8.1E-08	3.3E-07				
3	Barium	3.5E-06	1.4E-05				
4	Beryllium	1.2E-06	4.9E-06				
5	Cadmium (food	9.6E-06	3.8E-05				
6	Chromium (VI)	3.6E-06	1.5E-05				
7	Lead and Compo	2.5E-05	9.8E-05				
8	Mercury, inorg	1.9E-08	7.5E-08				
9	Nickel	3.6E-06	1.4E-05				
10	Silver	2.0E-07	7.8E-07				
11	Vanadium	2.9E-07	1.2E-06				
12	Cyanide (free)	1.5E-06	6.1E-06				
13	Nitrate, nitra	6.0E-06	2.4E-05				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	1.5E-09	6.0E-09				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	1.7E-09	6.7E-09				
20	Benzo (g,h,i)	2.1E-09	8.3E-09				
21	Benzo (k) fluo	5.0E-09	2.0E-08				
22	Chrysene	8.3E-10	3.3E-09				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	7.4E-09	2.9E-08				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	0.0E+00	0.0E+00				
27	Naphthalene	1.5E-08	5.8E-08				
28	Phenanthrene	1.4E-08	5.7E-08				
29	Pyrene	5.5E-09	2.2E-08				
30	Bis (2-ethylhe	2.7E-06	1.1E-05				
31	Butylbenzyl ph	2.1E-06	8.3E-06				
32	Di-n-butyl pht	6.7E-07	2.7E-06				
33	Di-n-octyl pht	3.3E-07	1.3E-06				
34	Aldrin	3.7E-09	1.5E-08				
35	Alpha-Endosulf	0.0E+00	0.0E+00				
36	Beta-Endosulfa	1.1E-09	4.2E-09				
37	DDD, 4,4'-	5.7E-10	2.3E-09				
38	DDE, 4,4'-	0.0E+00	0.0E+00				
39	DDT, 4,4'-	5.0E-09	2.0E-08				
40	Dieldrin	1.7E-09	6.8E-09				
41	Endrin	3.8E-09	1.5E-08				
42	Gamma-BHC (Lin	0.0E+00	0.0E+00				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	2.4E-10	9.6E-10				
45	Methoxychlor	1.1E-08	4.6E-08				
46	PCB 1254	0.0E+00	0.0E+00				
47	PCB 1260	5.2E-08	2.1E-07				

SUBCHRONIC RISK SUMMARY

FUTURE
RENOV. WORKER 312

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
5E-04	NA	0E+00	0E+00	0E+00	0E+00
3E-04	NA				
5E-05	1E-02				
2E-04	NA				
NA	NA				
2E-04	1E+01				
NA	NA				
6E-05	NA				
2E-04	NA				
4E-05	NA				
4E-05	NA				
8E-05	2E-02				
6E-05	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
4E-08	NA				
0E+00	NA				
4E-08	NA				
5E-08	NA				
1E-07	NA				
2E-08	NA				
0E+00	NA				
2E-08	NA				
0E+00	NA				
0E+00	NA				
4E-07	NA				
5E-08	NA				
2E-08	NA				
1E-04	NA				
1E-06	NA				
7E-07	NA				
2E-05	NA				
1E-04	NA				
0E+00	NA				
5E-06	NA				
NA	NA				
NA	NA				
1E-05	NA				
3E-05	NA				
1E-05	NA				
0E+00	NA				
0E+00	NA				
2E-05	NA				
2E-06	NA				
0E+00	NA				
7E-04	NA				

48 Dinitrotoluene	3.2E-09	1.3E-08							
49 RDX	4.0E-07	1.6E-06							
			2E-06	NA					
			1E-04	NA					
PATHWAY SUM (HI)			3E-03	1E+01	0E+00	0E+00	0E+00	0E+00	
POPULATION TOTAL			1E+01						

RANGE NAME: LSUM

SITE NAME: AHTL
OPERABLE UNIT: ZONE 2 BLDGS
FILE NAME: POP9
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 312

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.0E-09	1.2E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.2E-09	4.7E-09				
3	Barium	8.0E-08	2.0E-07				
4	Beryllium	1.8E-08	7.1E-08				
5	Cadmium (food	1.4E-07	8.5E-07				
6	Chromium (VI)	8.2E-08	2.1E-07				
7	Lead and Compo	3.5E-07	1.4E-06				
8	Mercury, inorg	2.7E-10	1.1E-09				
9	Nickel	5.1E-08	2.0E-07				
10	Silver	2.8E-09	1.1E-08				
11	Vanadium	4.2E-09	1.7E-08				
12	Cyanide (free)	2.2E-08	8.7E-08				
13	Nitrate, nitra	8.6E-08	3.5E-07				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	2.2E-11	8.6E-11				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	2.4E-11	9.5E-11				
20	Benzo (g,h,i)	3.0E-11	1.2E-10				
21	Benzo (k) fluo	7.1E-11	2.9E-10				
22	Chrysene	1.2E-11	4.8E-11				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	1.1E-10	4.2E-10				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	0.0E+00	0.0E+00				
27	Naphthalene	2.1E-10	8.3E-10				
28	Phenanthrene	2.1E-10	8.2E-10				
29	Pyrene	7.9E-11	3.1E-10				
30	Bis (2-ethylhe	3.9E-08	1.6E-07				
31	Butylbenzyl ph	3.0E-08	1.2E-07				
32	Di-n-butyl pht	9.6E-09	3.8E-08				
33	Di-n-octyl pht	4.8E-09	1.9E-08				
34	Aldrin	5.3E-11	2.1E-10				
35	Alpha-Endosulf	0.0E+00	0.0E+00				
36	Beta-Endosulfa	1.5E-11	6.0E-11				
37	DDD, 4,4'-	8.1E-12	3.3E-11				
38	DDE, 4,4'-	0.0E+00	0.0E+00				
39	DDT, 4,4'-	7.1E-11	2.8E-10				
40	Dieldrin	2.4E-11	9.7E-11				
41	Endrin	5.5E-11	2.2E-10				
42	Gamma-BHC (Lin	0.0E+00	0.0E+00				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	3.4E-12	1.4E-11				
45	Methoxychlor	1.6E-10	6.5E-10				
46	PCB 1254	0.0E+00	0.0E+00				
47	PCB 1260	7.4E-10	3.0E-09				

LIFETIME RISK SUMMARY

FUTURE
RENOV. WORKER 312

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 312 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 312 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
2E-09	7E-08				
NA	NA				
8E-08	6E-07				
NA	3E-06				
NA	9E-06				
NA	NA				
NA	NA				
NA	2E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
2E-10	NA				
0E+00	NA				
2E-10	NA				
NA	NA				
5E-10	NA				
9E-11	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
5E-10	NA				
NA	NA				
NA	NA				
NA	NA				
9E-10	4E-09				
NA	NA				
NA	NA				
2E-12	NA				
0E+00	NA				
2E-11	1E-10				
4E-10	2E-09				
NA	NA				
0E+00	NA				
0E+00	0E+00				
3E-11	1E-10				
NA	NA				
0E+00	NA				
6E-09	NA				

48 Dinitrotoluene	4.6E-11	1.8E-10		3E-11	NA				
49 RDX	5.7E-09	2.3E-08		6E-10	NA				
			TOTAL PATHWAY CANCER RISK	9E-08	1E-05	0E+00	0E+00	0E+00	0E+00
			POPULATION TOTAL EXCESS RISK	1E-05					

RANGE NAME: POPSUM

EXPOSURE SCENARIOS EVALUATED
(GROUPED BY POPULATION)

SITE NAME: AHTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

POPULATION 1 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	WORKSHEET NAME
1	FUTURE	RESIDENT 37	BLDG 37	INTERIOR RESID	ORAL	9.13E-05	5.71E-05	9.72E-06	WS1
2			BLDG 37	INTERIOR RESID	DERMAL	2.67E-04	2.32E-04	9.19E-05	WS2
3			BLDG 37	INDOOR AIR	INHALATION	2.74E-01	1.71E-01	2.91E-02	WS3
4									WS4
5									WS5
6									WS6

POPULATION 2 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	COMM. WORKER 37	BLDG 37	INTERIOR RESID	ORAL		9.78E-07	3.49E-07	WS1
2			BLDG 37	INTERIOR RESID	DERMAL		9.26E-05	3.31E-05	WS2
3			BLDG 37	INDOOR AIR	INHALATION		1.88E-02	6.71E-03	WS3
4									WS4
5									WS5
6									WS6

POPULATION 3 — NO. OF SCENARIOS = 2

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	RENOV. WORKER 37	BLDG 37	INTERIOR RESID	ORAL	9.78E-07		1.40E-08	WS1
2			BLDG 37	INDOOR AIR REN	INHALATION	3.91E-02		5.59E-04	WS2
3									WS3
4									WS4
5									WS5
6									WS6

POPULATION 4 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	RESIDENT 313	BLDG 313	INTERIOR RESID	ORAL	9.13E-05	5.71E-05	9.72E-06	WS1
2			BLDG 313	INTERIOR RESID	DERMAL	2.67E-04	2.32E-04	9.19E-05	WS2
3			BLDG 313	INDOOR AIR	INHALATION	2.74E-01	1.71E-01	2.91E-02	WS3
4									WS4
5									WS5
6									WS6

POPULATION 5 — NO. OF SCENARIOS = 3

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIF1	RANGE NAME
1	FUTURE	COMM. WORKER 313	BLDG 313	INTERIOR RESID	ORAL		9.78E-07	3.49E-07	WS1
2			BLDG 313	INTERIOR RESID	DERMAL		9.26E-05	3.31E-05	WS2
3			BLDG 313	INDOOR AIR	INHALATION		1.88E-02	6.71E-03	WS3
4									WS4
5									WS5
6									WS6

POPULATION 6

NO. OF SCENARIOS = 2

	LAND USE	EXPOSED POPULATION	EXPOSURE POINT	EXPOSURE MEDIUM	EXPOSURE ROUTE	HUMAN INTAKE FACTORS HIFs	HIFC	HIFI	RANGE NAME
1	FUTURE	RENOV. WORKER 313	BLDG 313	INTERIOR RESID	ORAL	9.78E-07		1.40E-08	WS1
2			BLDG 313	INDOOR AIR REN	INHALATION	3.91E-02		5.59E-04	WS2
3									WS3
4									WS4
5									WS5
6									WS6

RANGE NAME: EPC1

EXPOSURE POINT CONCENTRATIONS

EXPOSURE POINT: BLDG 37

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		MEDIUM 1 INTERIOR RESIDUE			MEDIUM 2 INDOOR AIR			MEDIUM 3 INDOOR AIR REN			MEDIUM 4 0			MEDIUM 5 0		
		Cs	Cc	Cl	Cs	Cc	Cl	Cs	Cc	Cl	Cs	Cc	Cl	Cs	Cc	Cl
	CHEMICAL NAME	11S	11C	11L	12S	12C	12L	13S	13C	13L	14S	14C	14L	15S	15C	15L
1	Antimony	2.0E-02	2.0E-02	2.0E-02	2.0E-07	2.0E-07	2.0E-07	2.0E-06	2.0E-06	2.0E-06						
2	Arsenic	2.2E-01	2.2E-01	2.2E-01	2.2E-06	2.2E-06	2.2E-06	2.2E-05	2.2E-05	2.2E-05						
3	Barium	1.2E+01	1.2E+01	1.2E+01	1.2E-04	1.2E-04	1.2E-04	1.2E-03	1.2E-03	1.2E-03						
4	Beryllium	3.1E-03	3.1E-03	3.1E-03	3.1E-08	3.1E-08	3.1E-08	3.1E-07	3.1E-07	3.1E-07						
5	Cadmium (food	4.3E-01	4.3E-01	4.3E-01	4.3E-06	4.3E-06	4.3E-06	4.3E-05	4.3E-05	4.3E-05						
6	Chromium (VI)	1.5E+01	1.5E+01	1.5E+01	1.5E-04	1.5E-04	1.5E-04	1.5E-03	1.5E-03	1.5E-03						
7	Lead and Compo	2.2E+01	2.2E+01	2.2E+01	2.2E-04	2.2E-04	2.2E-04	2.2E-03	2.2E-03	2.2E-03						
8	Mercury, inorg	5.0E-02	5.0E-02	5.0E-02	5.0E-07	5.0E-07	5.0E-07	5.0E-06	5.0E-06	5.0E-06						
9	Nickel	8.3E+00	8.3E+00	8.3E+00	8.3E-05	8.3E-05	8.3E-05	8.3E-04	8.3E-04	8.3E-04						
10	Silver	2.1E-01	2.1E-01	2.1E-01	2.1E-06	2.1E-06	2.1E-06	2.1E-05	2.1E-05	2.1E-05						
11	Vanadium	7.7E-01	7.7E-01	7.7E-01	7.7E-06	7.7E-06	7.7E-06	7.7E-05	7.7E-05	7.7E-05						
12	Cyanide (free)	7.0E-02	7.0E-02	7.0E-02	7.0E-07	7.0E-07	7.0E-07	7.0E-06	7.0E-06	7.0E-06						
13	Nitrate, nitra	--	--	--	--	--	--	--	--	--						
14	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
15	Acenaphthylene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
16	Anthracene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
17	Benzo (a) anth	5.4E-03	5.4E-03	5.4E-03	5.4E-08	5.4E-08	5.4E-08	5.4E-07	5.4E-07	5.4E-07						
18	Benzo (a) pyre	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
19	Benzo (b) flue	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
20	Benzo (g,h,i)	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
21	Benzo (k) flue	4.6E-03	4.6E-03	4.6E-03	4.6E-08	4.6E-08	4.6E-08	4.6E-07	4.6E-07	4.6E-07						
22	Chrysene	7.2E-03	7.2E-03	7.2E-03	7.2E-08	7.2E-08	7.2E-08	7.2E-07	7.2E-07	7.2E-07						
23	Dibenz (a,h) a	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
24	Fluoranthene	5.2E-02	5.2E-02	5.2E-02	5.2E-07	5.2E-07	5.2E-07	5.2E-06	5.2E-06	5.2E-06						
25	Fluorene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
26	Methylnaphthal	2.7E-02	2.7E-02	2.7E-02	2.7E-07	2.7E-07	2.7E-07	2.7E-06	2.7E-06	2.7E-06						
27	Naphthalene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
28	Phenanthrene	1.7E-01	1.7E-01	1.7E-01	1.7E-06	1.7E-06	1.7E-06	1.7E-05	1.7E-05	1.7E-05						
29	Pyrene	3.2E-02	3.2E-02	3.2E-02	3.2E-07	3.2E-07	3.2E-07	3.2E-06	3.2E-06	3.2E-06						
30	Bis (2-ethylhe	1.9E+00	1.9E+00	1.9E+00	1.9E-05	1.9E-05	1.9E-05	1.9E-04	1.9E-04	1.9E-04						
31	Butylbenzyl ph	1.9E-01	1.9E-01	1.9E-01	1.9E-06	1.9E-06	1.9E-06	1.9E-05	1.9E-05	1.9E-05						
32	Di-n-butyl pht	1.4E-01	1.4E-01	1.4E-01	1.4E-06	1.4E-06	1.4E-06	1.4E-05	1.4E-05	1.4E-05						
33	Di-n-octyl pht	9.1E-02	9.1E-02	9.1E-02	9.1E-07	9.1E-07	9.1E-07	9.1E-06	9.1E-06	9.1E-06						
34	Aldrin	3.6E-03	3.6E-03	3.6E-03	3.6E-08	3.6E-08	3.6E-08	3.6E-07	3.6E-07	3.6E-07						
35	Alpha-Endosulf	1.8E-03	1.8E-03	1.8E-03	1.8E-08	1.8E-08	1.8E-08	1.8E-07	1.8E-07	1.8E-07						
36	Beta-Endosulfa	1.7E-03	1.7E-03	1.7E-03	1.7E-08	1.7E-08	1.7E-08	1.7E-07	1.7E-07	1.7E-07						
37	DDD, 4,4'-	4.7E-03	4.7E-03	4.7E-03	4.7E-08	4.7E-08	4.7E-08	4.7E-07	4.7E-07	4.7E-07						
38	DDE, 4,4'-	6.0E-03	6.0E-03	6.0E-03	6.0E-08	6.0E-08	6.0E-08	6.0E-07	6.0E-07	6.0E-07						
39	DDT, 4,4'-	1.7E-02	1.7E-02	1.7E-02	1.7E-07	1.7E-07	1.7E-07	1.7E-06	1.7E-06	1.7E-06						
40	Dieldrin	4.6E-03	4.6E-03	4.6E-03	4.6E-08	4.6E-08	4.6E-08	4.6E-07	4.6E-07	4.6E-07						
41	Endrin	1.1E-03	1.1E-03	1.1E-03	1.1E-08	1.1E-08	1.1E-08	1.1E-07	1.1E-07	1.1E-07						
42	Gamma-BHC (Lin	2.9E-04	2.9E-04	2.9E-04	2.9E-09	2.9E-09	2.9E-09	2.9E-08	2.9E-08	2.9E-08						
43	Heptachlor	1.3E-04	1.3E-04	1.3E-04	1.3E-09	1.3E-09	1.3E-09	1.3E-08	1.3E-08	1.3E-08						
44	Heptachlor epo	3.4E-04	3.4E-04	3.4E-04	3.4E-09	3.4E-09	3.4E-09	3.4E-08	3.4E-08	3.4E-08						
45	Methoxychlor	4.0E-03	4.0E-03	4.0E-03	4.0E-08	4.0E-08	4.0E-08	4.0E-07	4.0E-07	4.0E-07						
46	PCB 1254	6.5E-03	6.5E-03	6.5E-03	6.5E-08	6.5E-08	6.5E-08	6.5E-07	6.5E-07	6.5E-07						
47	PCB 1260	2.9E-02	2.9E-02	2.9E-02	2.9E-07	2.9E-07	2.9E-07	2.9E-06	2.9E-06	2.9E-06						
48	Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
49	RDX	--	--	--	--	--	--	--	--	--						

RANGE NAME: EPC2

EXPOSURE POINT CONCENTRATIONS

EXPOSURE POINT: BLDG 313

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: DATA
LAST UPDATED: 10/03/94

		MEDIUM 1 INTERIOR RESIDUE			MEDIUM 2 INDOOR AIR			MEDIUM 3 INDOOR AIR REN			MEDIUM 4 0			MEDIUM 5 0		
		Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl	Ca	Cc	Cl
	CHEMICAL NAME	21S	21C	21L	22S	22C	22L	23S	23C	23L	24S	24C	24L	25S	25C	25L
1	Antimony	3.3E-01	3.3E-01	3.3E-01	3.3E-06	3.3E-06	3.3E-06	3.3E-05	3.3E-05	3.3E-05						
2	Arsenic	2.7E-02	2.7E-02	2.7E-02	2.7E-07	2.7E-07	2.7E-07	2.7E-06	2.7E-06	2.7E-06						
3	Barium	2.8E+00	2.8E+00	2.8E+00	2.8E-05	2.8E-05	2.8E-05	2.8E-04	2.8E-04	2.8E-04						
4	Beryllium	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
5	Cadmium (food	2.0E-01	2.0E-01	2.0E-01	2.0E-06	2.0E-06	2.0E-06	2.0E-05	2.0E-05	2.0E-05						
6	Chromium (VI)	2.0E+00	2.0E+00	2.0E+00	2.0E-05	2.0E-05	2.0E-05	2.0E-04	2.0E-04	2.0E-04						
7	Lead and Compo	3.1E+01	3.1E+01	3.1E+01	3.1E-04	3.1E-04	3.1E-04	3.1E-03	3.1E-03	3.1E-03						
8	Mercury, inorg	2.2E-02	2.2E-02	2.2E-02	2.2E-07	2.2E-07	2.2E-07	2.2E-06	2.2E-06	2.2E-06						
9	Nickel	8.0E+00	8.0E+00	8.0E+00	8.0E-05	8.0E-05	8.0E-05	8.0E-04	8.0E-04	8.0E-04						
10	Silver	1.0E-01	1.0E-01	1.0E-01	1.0E-06	1.0E-06	1.0E-06	1.0E-05	1.0E-05	1.0E-05						
11	Vanadium	1.8E-01	1.8E-01	1.8E-01	1.8E-06	1.8E-06	1.8E-06	1.8E-05	1.8E-05	1.8E-05						
12	Cyanide (free)	--	--	--	--	--	--	--	--	--						
13	Nitrate, nitra	2.3E+00	2.3E+00	2.3E+00	2.3E-05	2.3E-05	2.3E-05	2.3E-04	2.3E-04	2.3E-04						
14	Acenaphthene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
15	Acenaphthylene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
16	Anthracene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
17	Benzo (a) anth	4.2E-03	4.2E-03	4.2E-03	4.2E-08	4.2E-08	4.2E-08	4.2E-07	4.2E-07	4.2E-07						
18	Benzo (a) pyre	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
19	Benzo (b) flue	3.9E-02	3.9E-02	3.9E-02	3.9E-07	3.9E-07	3.9E-07	3.9E-06	3.9E-06	3.9E-06						
20	Benzo (g,h,i)	2.2E-02	2.2E-02	2.2E-02	2.2E-07	2.2E-07	2.2E-07	2.2E-06	2.2E-06	2.2E-06						
21	Benzo (k) flue	1.2E-03	1.2E-03	1.2E-03	1.2E-08	1.2E-08	1.2E-08	1.2E-07	1.2E-07	1.2E-07						
22	Chrysene	3.7E-03	3.7E-03	3.7E-03	3.7E-08	3.7E-08	3.7E-08	3.7E-07	3.7E-07	3.7E-07						
23	Dibenz (a,h) a	6.1E-03	6.1E-03	6.1E-03	6.1E-08	6.1E-08	6.1E-08	6.1E-07	6.1E-07	6.1E-07						
24	Fluoranthene	1.5E-02	1.5E-02	1.5E-02	1.5E-07	1.5E-07	1.5E-07	1.5E-06	1.5E-06	1.5E-06						
25	Fluorene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
26	Methylnaphthal	2.4E-03	2.4E-03	2.4E-03	2.4E-08	2.4E-08	2.4E-08	2.4E-07	2.4E-07	2.4E-07						
27	Naphthalene	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
28	Phenanthrene	6.6E-03	6.6E-03	6.6E-03	6.6E-08	6.6E-08	6.6E-08	6.6E-07	6.6E-07	6.6E-07						
29	Pyrene	7.6E-04	7.6E-04	7.6E-04	7.6E-09	7.6E-09	7.6E-09	7.6E-08	7.6E-08	7.6E-08						
30	Bis (2-ethylhe	1.4E+00	1.4E+00	1.4E+00	1.4E-05	1.4E-05	1.4E-05	1.4E-04	1.4E-04	1.4E-04						
31	Butylbenzyl ph	1.1E+00	1.1E+00	1.1E+00	1.1E-05	1.1E-05	1.1E-05	1.1E-04	1.1E-04	1.1E-04						
32	Di-n-butyl pht	2.6E-01	2.6E-01	2.6E-01	2.6E-06	2.6E-06	2.6E-06	2.6E-05	2.6E-05	2.6E-05						
33	Di-n-octyl pht	6.5E-02	6.5E-02	6.5E-02	6.5E-07	6.5E-07	6.5E-07	6.5E-06	6.5E-06	6.5E-06						
34	Aldrin	--	--	--	--	--	--	--	--	--						
35	Alpha-Endosulf	--	--	--	--	--	--	--	--	--						
36	Beta-Endosulfa	--	--	--	--	--	--	--	--	--						
37	DDD, 4,4'-	--	--	--	--	--	--	--	--	--						
38	DDE, 4,4'-	--	--	--	--	--	--	--	--	--						
39	DDT, 4,4'-	--	--	--	--	--	--	--	--	--						
40	Dieldrin	--	--	--	--	--	--	--	--	--						
41	Endrin	--	--	--	--	--	--	--	--	--						
42	Gamma-BHC (Lin	--	--	--	--	--	--	--	--	--						
43	Heptachlor	--	--	--	--	--	--	--	--	--						
44	Heptachlor epo	--	--	--	--	--	--	--	--	--						
45	Methoxychlor	--	--	--	--	--	--	--	--	--						
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00	--	--	--	--	--	--						
47	PCB 1260	2.3E-01	2.3E-01	2.3E-01	2.3E-06	2.3E-06	2.3E-06	2.3E-05	2.3E-05	2.3E-05						
48	Dinitrotoluene	4.6E-01	4.6E-01	4.6E-01	4.6E-06	4.6E-06	4.6E-06	4.6E-05	4.6E-05	4.6E-05						
49	RDX	4.7E-01	4.7E-01	4.7E-01	4.7E-06	4.7E-06	4.7E-06	4.7E-05	4.7E-05	4.7E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 37

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.5E-06	7.3E-09	7.5E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.0E-05	6.0E-08	6.1E-07			
3	Barium	1.1E-03	3.2E-06	3.3E-05			
4	Beryllium	2.8E-07	8.1E-10	8.4E-09			
5	Cadmium (food	3.9E-05	1.1E-06	1.2E-06			
6	Chromium (VI)	1.4E-03	4.0E-06	4.1E-05			
7	Lead and Compo	2.0E-03	3.5E-05	6.1E-05			
8	Mercury, inorg	4.5E-06	1.3E-08	1.4E-07			
9	Nickel	7.6E-04	NA	2.3E-05			
10	Silver	1.9E-05	5.6E-07	5.7E-07			
11	Vanadium	7.1E-05	2.1E-07	2.1E-06			
12	Cyanide (free)	6.4E-06	5.6E-07	1.9E-07			
13	Nitrate, nitra	0.0E+00	0.0E+00	0.0E+00			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	5.0E-07	NA	1.5E-06			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) flue	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) flue	4.2E-07	NA	1.2E-06			
22	Chrysene	6.6E-07	NA	2.0E-06			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	4.8E-06	NA	1.4E-07			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.5E-06	NA	7.4E-08			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.5E-05	NA	4.6E-07			
29	Pyrene	2.9E-06	NA	8.7E-08			
30	Bis (2-ethylhe	1.8E-04	NA	5.3E-06			
31	Butylbenzyl ph	1.7E-05	NA	5.1E-07			
32	Di-n-butyl pht	1.3E-05	NA	3.8E-07			
33	Di-n-octyl pht	8.3E-06	NA	2.5E-07			
34	Aldrin	3.3E-07	9.6E-09	9.9E-09			
35	Alpha-Endosulf	1.6E-07	4.8E-09	4.9E-09			
36	Beta-Endosulfa	1.6E-07	4.6E-09	4.7E-09			
37	DDD, 4,4'-	4.3E-07	1.2E-08	1.3E-08			
38	DDE, 4,4'-	5.6E-07	1.6E-08	1.6E-08			
39	DDT, 4,4'-	1.5E-06	4.5E-08	4.6E-08			
40	Dieldrin	4.2E-07	1.2E-08	1.3E-08			
41	Endrin	9.8E-08	2.9E-09	2.9E-09			
42	Gamma-BHC (Lin	2.6E-08	7.7E-10	7.9E-10			
43	Heptachlor	1.2E-08	3.5E-10	3.6E-10			
44	Heptachlor epo	3.1E-08	9.1E-10	9.4E-10			
45	Methoxychlor	3.7E-07	NA	1.1E-06			
46	PCB 1254	5.9E-07	1.0E-07	1.8E-06			
47	PCB 1260	2.6E-06	4.6E-07	7.8E-06			

SUBCHRONIC RISK SUMMARY

FUTURE
RESIDENT 37

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
6E-03	2E-04	NA	0E+00	0E+00	0E+00
7E-02	2E-04	NA			
2E-02	5E-04	2E-02			
6E-05	3E-05	NA			
NA	NA	NA			
7E-02	4E-03	4E+01			
NA	NA	NA			
2E-02	2E-03	NA			
4E-02	NA	NA			
4E-03	2E-03	NA			
1E-02	3E-03	NA			
3E-04	3E-05	7E-04			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-05	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-05	NA	NA			
2E-05	NA	NA			
0E+00	NA	NA			
1E-05	NA	NA			
0E+00	NA	NA			
6E-05	NA	NA			
0E+00	NA	NA			
5E-05	NA	NA			
1E-05	NA	NA			
9E-03	NA	NA			
9E-06	NA	NA			
1E-05	NA	NA			
4E-04	NA	NA			
1E-02	3E-04	NA			
8E-04	2E-05	NA			
8E-04	2E-05	NA			
NA	NA	NA			
NA	NA	NA			
3E-03	9E-05	NA			
8E-03	2E-04	NA			
3E-04	1E-05	NA			
9E-06	3E-07	NA			
2E-05	7E-07	NA			
2E-03	7E-05	NA			
7E-05	NA	NA			
8E-03	2E-03	NA			
4E-02	7E-03	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00						
49 RDX	0.0E+00	0.0E+00	0.0E+00						
				0E+00	0E+00	NA			
				0E+00	0E+00	NA			
PATHWAY SUM (HI)				3E-01	2E-02	4E+01	0E+00	0E+00	0E+00
POPULATION TOTAL				4E+01					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 37

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.6E-06	6.4E-09	4.7E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.3E-05	5.2E-08	3.8E-07			
3	Barium	6.9E-04	2.8E-06	2.1E-05			
4	Beryllium	1.7E-07	7.1E-10	5.2E-09			
5	Cadmium (food	2.4E-05	9.9E-07	7.3E-07			
6	Chromium (VI)	8.5E-04	3.5E-06	2.6E-05			
7	Lead and Compo	1.3E-03	3.1E-05	3.8E-05			
8	Mercury, inorg	2.8E-06	1.2E-08	8.5E-08			
9	Nickel	4.8E-04	NA	1.4E-05			
10	Silver	1.2E-05	4.8E-07	3.6E-07			
11	Vanadium	4.4E-05	1.8E-07	1.3E-06			
12	Cyanide (free)	4.0E-06	4.8E-07	1.2E-07			
13	Nitrate, nitra	0.0E+00	0.0E+00	0.0E+00			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	3.1E-07	NA	9.3E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	2.6E-07	NA	7.8E-09			
22	Chrysene	4.1E-07	NA	1.2E-08			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	3.0E-06	NA	9.0E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	1.5E-06	NA	4.6E-08			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	9.6E-06	NA	2.9E-07			
29	Pyrene	1.8E-06	NA	5.4E-08			
30	Bis (2-ethylhe	1.1E-04	NA	3.3E-06			
31	Butylbenzyl ph	1.1E-05	NA	3.2E-07			
32	Di-n-butyl pht	8.0E-06	NA	2.4E-07			
33	Di-n-octyl pht	5.2E-06	NA	1.6E-07			
34	Aldrin	2.1E-07	8.3E-09	6.2E-09			
35	Alpha-Endosulf	1.0E-07	4.1E-09	3.1E-09			
36	Beta-Endosulfa	9.7E-08	4.0E-09	2.9E-09			
37	DDD, 4,4'-	2.7E-07	1.1E-08	8.0E-09			
38	DDE, 4,4'-	3.4E-07	1.4E-08	1.0E-08			
39	DDT, 4,4'-	9.6E-07	3.9E-08	2.9E-08			
40	Dieldrin	2.6E-07	1.1E-08	7.9E-09			
41	Endrin	6.1E-08	2.5E-09	1.8E-09			
42	Gamma-BHC (Lin	1.6E-08	6.7E-10	4.9E-10			
43	Heptachlor	7.6E-09	3.1E-10	2.3E-10			
44	Heptachlor epo	1.9E-08	7.9E-10	5.8E-10			
45	Methoxychlor	2.3E-07	NA	6.9E-09			
46	PCB 1254	3.7E-07	9.0E-08	1.1E-08			
47	PCB 1260	1.6E-06	4.0E-07	4.9E-08			

CHRONIC RISK SUMMARY

FUTURE
RESIDENT 37

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
4E-03	2E-04	NA	0E+00	0E+00	0E+00
4E-02	2E-04	NA			
1E-02	4E-04	1E-01			
3E-05	3E-05	NA			
2E-02	4E-02	NA			
2E-01	1E-02	NA			
NA	NA	NA			
9E-03	2E-03	NA			
2E-02	NA	NA			
2E-03	2E-03	NA			
6E-03	3E-03	NA			
2E-04	2E-05	6E-05			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
8E-06	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
7E-06	NA	NA			
1E-05	NA	NA			
0E+00	NA	NA			
7E-05	NA	NA			
0E+00	NA	NA			
4E-05	NA	NA			
0E+00	NA	NA			
3E-04	NA	NA			
6E-05	NA	NA			
5E-03	NA	NA			
5E-05	NA	NA			
8E-05	NA	NA			
3E-04	NA	NA			
7E-03	3E-04	NA			
2E-03	8E-05	NA			
2E-03	8E-05	NA			
NA	NA	NA			
NA	NA	NA			
2E-03	8E-05	NA			
5E-03	2E-04	NA			
2E-04	8E-06	NA			
5E-05	2E-06	NA			
2E-05	6E-07	NA			
1E-03	6E-05	NA			
5E-05	NA	NA			
5E-03	1E-03	NA			
2E-02	6E-03	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	0.0E+00	0.0E+00	0.0E+00							
					0E+00	0E+00	NA			
					0E+00	0E+00	NA			
				PATHWAY SUM (HI)	4E-01	7E-02	1E-01	0E+00	0E+00	0E+00
				POPULATION TOTAL	6E-01					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP1
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RESIDENT 37

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.7E-07	2.5E-09	8.0E-09	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.2E-06	2.1E-08	6.5E-08			
3	Barium	1.2E-04	1.1E-06	3.5E-06			
4	Beryllium	3.0E-08	2.8E-10	8.9E-10			
5	Cadmium (food	4.2E-06	3.9E-07	1.2E-07			
6	Chromium (VI)	1.5E-04	1.4E-06	4.4E-06			
7	Lead and Compo	2.2E-04	1.2E-05	6.5E-06			
8	Mercury, inorg	4.8E-07	4.6E-09	1.4E-08			
9	Nickel	8.1E-05	NA	2.4E-06			
10	Silver	2.0E-06	1.9E-07	6.1E-08			
11	Vanadium	7.5E-06	7.1E-08	2.3E-07			
12	Cyanide (free)	6.8E-07	1.9E-07	2.0E-08			
13	Nitrate, nitra	0.0E+00	0.0E+00	0.0E+00			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	5.3E-08	NA	1.6E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	4.4E-08	NA	1.3E-09			
22	Chrysene	7.0E-08	NA	2.1E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	5.1E-07	NA	1.5E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.6E-07	NA	7.8E-09			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.6E-06	NA	4.9E-08			
29	Pyrene	3.1E-07	NA	9.3E-09			
30	Bis (2-ethylhe	1.9E-05	NA	5.6E-07			
31	Butylbenzyl ph	1.8E-06	NA	5.5E-08			
32	Di-n-butyl pht	1.4E-06	NA	4.1E-08			
33	Di-n-octyl pht	8.9E-07	NA	2.7E-08			
34	Aldrin	3.5E-08	3.3E-09	1.1E-09			
35	Alpha-Endosulf	1.7E-08	1.6E-09	5.2E-10			
36	Beta-Endosulfa	1.7E-08	1.6E-09	5.0E-10			
37	DDD, 4,4'-	4.8E-08	4.3E-09	1.4E-09			
38	DDE, 4,4'-	5.8E-08	5.5E-09	1.8E-09			
39	DDT, 4,4'-	1.6E-07	1.5E-08	4.9E-09			
40	Dieldrin	4.5E-08	4.2E-09	1.3E-09			
41	Endrin	1.0E-08	9.8E-10	3.1E-10			
42	Gamma-BHC (Lin	2.8E-09	2.7E-10	8.4E-11			
43	Heptachlor	1.3E-09	1.2E-10	3.9E-11			
44	Heptachlor epo	3.3E-09	3.1E-10	1.0E-10			
45	Methoxychlor	3.9E-08	NA	1.2E-09			
46	PCB 1254	6.3E-08	3.6E-08	1.9E-09			
47	PCB 1260	2.8E-07	1.6E-07	8.3E-09			

LIFETIME RISK SUMMARY

FUTURE
RESIDENT 37

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
4E-06	4E-08	1E-06			
NA	NA	NA			
1E-07	2E-07	7E-09			
NA	NA	8E-07			
NA	NA	2E-04			
NA	NA	NA			
NA	NA	NA			
NA	NA	2E-06			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
4E-07	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
3E-07	NA	NA			
5E-07	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
3E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
6E-07	6E-08	2E-08			
NA	NA	NA			
NA	NA	NA			
1E-08	1E-09	NA			
2E-08	2E-09	NA			
6E-08	5E-09	2E-09			
7E-07	7E-08	2E-08			
NA	NA	NA			
4E-09	3E-10	NA			
6E-09	5E-10	2E-10			
3E-08	3E-09	9E-10			
NA	NA	NA			
5E-07	3E-07	NA			
2E-06	1E-06	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00								
49 RDX	0.0E+00	0.0E+00	0.0E+00								
					0E+00	0E+00	NA				
					0E+00	0E+00	NA				
				TOTAL PATHWAY CANCER RISK	1E-05	2E-06	2E-04	0E+00	0E+00	0E+00	
				POPULATION TOTAL EXCESS RISK	2E-04						

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP2
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
COMM. WORKER 37

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	2.7E-08	2.6E-09	5.2E-09	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.2E-07	2.1E-08	4.2E-08			
3	Barium	1.2E-05	1.1E-06	2.3E-06			
4	Beryllium	3.0E-09	2.8E-10	5.7E-10			
5	Cadmium (food	4.2E-07	4.0E-07	8.0E-08			
6	Chromium (VI)	1.5E-05	1.4E-06	2.8E-06			
7	Lead and Compo	2.2E-05	1.2E-05	4.2E-06			
8	Mercury, inorg	4.9E-08	4.6E-09	9.3E-09			
9	Nickel	8.1E-06	NA	1.6E-06			
10	Silver	2.0E-07	1.9E-07	3.9E-08			
11	Vanadium	7.6E-07	7.1E-08	1.5E-07			
12	Cyanide (free)	6.8E-08	1.9E-07	1.3E-08			
13	Nitrate, nitra	0.0E+00	0.0E+00	0.0E+00			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	5.3E-09	NA	1.0E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	4.5E-09	NA	8.6E-10			
22	Chrysene	7.0E-09	NA	1.4E-09			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	5.1E-08	NA	9.9E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.6E-08	NA	5.0E-09			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	1.6E-07	NA	3.2E-08			
29	Pyrene	3.1E-08	NA	6.0E-09			
30	Bis (2-ethylhe	1.9E-06	NA	3.6E-07			
31	Butylbenzyl ph	1.8E-07	NA	3.5E-08			
32	Di-n-butyl pht	1.4E-07	NA	2.6E-08			
33	Di-n-octyl pht	8.9E-08	NA	1.7E-08			
34	Aldrin	3.5E-09	3.3E-09	6.8E-10			
35	Alpha-Endosulf	1.7E-09	1.6E-09	3.3E-10			
36	Beta-Endosulfa	1.7E-09	1.6E-09	3.2E-10			
37	DDD, 4,4'-	4.6E-09	4.3E-09	8.8E-10			
38	DDE, 4,4'-	5.9E-09	5.6E-09	1.1E-09			
39	DDT, 4,4'-	1.7E-08	1.6E-08	3.2E-09			
40	Dieldrin	4.5E-09	4.3E-09	8.6E-10			
41	Endrin	1.0E-09	9.9E-10	2.0E-10			
42	Gamma-BHC (Lin	2.8E-10	2.7E-10	5.4E-11			
43	Heptachlor	1.3E-10	1.2E-10	2.5E-11			
44	Heptachlor epo	3.3E-10	3.2E-10	6.4E-11			
45	Methoxychlor	3.9E-09	NA	7.6E-10			
46	PCB 1254	6.4E-09	3.8E-08	1.2E-09			
47	PCB 1260	2.8E-08	1.6E-07	5.4E-09			

CHRONIC RISK SUMMARY

FUTURE
COMM. WORKER 37

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
7E-05	6E-05	NA	0E+00	0E+00	0E+00
7E-04	7E-05	NA			
2E-04	2E-04	2E-02			
6E-07	1E-05	NA			
4E-04	2E-02	NA			
3E-03	6E-03	NA			
NA	NA	NA			
2E-04	8E-04	NA			
4E-04	NA	NA			
4E-05	8E-04	NA			
1E-04	1E-03	NA			
3E-06	1E-05	7E-06			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-07	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-07	NA	NA			
2E-07	NA	NA			
0E+00	NA	NA			
1E-06	NA	NA			
0E+00	NA	NA			
7E-07	NA	NA			
0E+00	NA	NA			
5E-06	NA	NA			
1E-06	NA	NA			
9E-05	NA	NA			
9E-07	NA	NA			
1E-06	NA	NA			
4E-06	NA	NA			
1E-04	1E-04	NA			
3E-05	3E-05	NA			
3E-05	3E-05	NA			
NA	NA	NA			
NA	NA	NA			
3E-05	3E-05	NA			
9E-05	9E-05	NA			
3E-06	3E-06	NA			
9E-07	9E-07	NA			
3E-07	2E-07	NA			
3E-05	2E-05	NA			
8E-07	NA	NA			
9E-05	5E-04	NA			
4E-04	2E-03	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	0.0E+00	0.0E+00	0.0E+00							
					0E+00	0E+00	NA			
					0E+00	0E+00	NA			
				PATHWAY SUM (HI)	6E-03	3E-02	2E-02	0E+00	0E+00	0E+00
				POPULATION TOTAL	6E-02					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP2
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
COMM. WORKER 37

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	9.6E-09	9.1E-10	1.8E-09	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	7.8E-08	7.4E-09	1.5E-08			
3	Barium	4.2E-06	4.0E-07	8.1E-07			
4	Beryllium	1.1E-09	1.0E-10	2.0E-10			
5	Cadmium (food	1.5E-07	1.4E-07	2.9E-08			
6	Chromium (VI)	5.2E-06	4.9E-07	1.0E-06			
7	Lead and Compo	7.7E-06	4.4E-06	1.5E-06			
8	Mercury, inorg	1.7E-08	1.6E-09	3.3E-09			
9	Nickel	2.9E-06	NA	5.6E-07			
10	Silver	7.3E-08	6.9E-08	1.4E-08			
11	Vanadium	2.7E-07	2.6E-08	5.2E-08			
12	Cyanide (free)	2.4E-08	6.9E-08	4.7E-09			
13	Nitrate, nitra	0.0E+00	0.0E+00	0.0E+00			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.9E-09	NA	3.6E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	0.0E+00	NA	0.0E+00			
20	Benzo (g,h,i)	0.0E+00	NA	0.0E+00			
21	Benzo (k) fluo	1.6E-09	NA	3.1E-10			
22	Chrysene	2.5E-09	NA	4.8E-10			
23	Dibenz (a,h) a	0.0E+00	NA	0.0E+00			
24	Fluoranthene	1.8E-08	NA	3.5E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	9.4E-09	NA	1.8E-09			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	5.9E-08	NA	1.1E-08			
29	Pyrene	1.1E-08	NA	2.1E-09			
30	Bis (2-ethylhe	6.7E-07	NA	1.3E-07			
31	Butylbenzyl ph	6.6E-08	NA	1.3E-08			
32	Di-n-butyl pht	4.9E-08	NA	9.4E-09			
33	Di-n-octyl pht	3.2E-08	NA	6.1E-09			
34	Aldrin	1.3E-09	1.2E-09	2.4E-10			
35	Alpha-Endosulf	6.2E-10	5.9E-10	1.2E-10			
36	Beta-Endosulfa	6.0E-10	5.6E-10	1.1E-10			
37	DDD, 4,4'-	1.6E-09	1.5E-09	3.1E-10			
38	DDE, 4,4'-	2.1E-09	2.0E-09	4.0E-10			
39	DDT, 4,4'-	5.9E-09	5.6E-09	1.1E-09			
40	Dieldrin	1.6E-09	1.5E-09	3.1E-10			
41	Endrin	3.7E-10	3.5E-10	7.2E-11			
42	Gamma-BHC (Lin	1.0E-10	9.5E-11	1.9E-11			
43	Heptachlor	4.6E-11	4.4E-11	8.9E-12			
44	Heptachlor epo	1.2E-10	1.1E-10	2.3E-11			
45	Methoxychlor	1.4E-09	NA	2.7E-10			
46	PCB 1254	2.3E-09	1.3E-08	4.4E-10			
47	PCB 1260	1.0E-08	5.7E-08	1.9E-09			

LIFETIME RISK SUMMARY

FUTURE
COMM. WORKER 37

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 37 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
1E-07	1E-08	2E-07			
NA	NA	NA			
5E-09	9E-08	2E-09			
NA	NA	2E-07			
NA	NA	4E 05			
NA	NA	NA			
NA	NA	NA			
NA	NA	5E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
2E-08	NA	NA			
0E+00	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
9E-09	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-08	2E-08	4E-09			
NA	NA	NA			
NA	NA	NA			
4E-10	4E-10	NA			
7E-10	7E-10	NA			
2E-09	2E-09	4E-10			
3E-08	2E-08	5E-09			
NA	NA	NA			
1E-10	1E-10	NA			
2E-10	2E-10	4E-11			
1E-09	1E-09	2E-10			
NA	NA	NA			
2E-08	1E-07	NA			
8E-08	5E-07	NA			

48 Dinitrotoluene	0.0E+00	0.0E+00	0.0E+00							
49 RDX	0.0E+00	0.0E+00	0.0E+00							
					0E+00	0E+00	NA			
					0E+00	0E+00	NA			
				TOTAL PATHWAY CANCER RISK	3E-07	7E-07	4E-05	0E+00	0E+00	0E+00
				POPULATION TOTAL EXCESS RISK	4E-05					

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP3
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 37

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
1	Antimony	2.7E-08	1.1E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.2E-07	8.7E-07				
3	Barium	1.2E-05	4.7E-05				
4	Beryllium	3.0E-09	1.2E-08				
5	Cadmium (food	4.2E-07	1.7E-06				
6	Chromium (VI)	1.5E-05	5.8E-05				
7	Lead and Compo	2.2E-05	8.7E-05				
8	Mercury, inorg	4.9E-08	1.9E-07				
9	Nickel	8.1E-06	3.3E-05				
10	Silver	2.0E-07	8.2E-07				
11	Vanadium	7.6E-07	3.0E-06				
12	Cyanide (free)	6.8E-08	2.7E-07				
13	Nitrate, nitra	0.0E+00	0.0E+00				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	5.3E-09	2.1E-08				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) fluo	4.5E-09	1.8E-08				
22	Chrysene	7.0E-09	2.8E-08				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	5.1E-08	2.1E-07				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	2.6E-08	1.1E-07				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	1.6E-07	6.6E-07				
29	Pyrene	3.1E-08	1.2E-07				
30	Bis (2-ethylhe	1.9E-06	7.5E-06				
31	Butylbenzyl ph	1.8E-07	7.3E-07				
32	Di-n-butyl pht	1.4E-07	5.5E-07				
33	Di-n-octyl pht	8.9E-08	3.6E-07				
34	Aldrin	3.5E-09	1.4E-08				
35	Alpha-Endosulf	1.7E-09	7.0E-09				
36	Beta-Endosulfa	1.7E-09	6.7E-09				
37	DDD, 4,4'-	4.6E-09	1.8E-08				
38	DDE, 4,4'-	5.9E-09	2.4E-08				
39	DDT, 4,4'-	1.7E-08	6.8E-08				
40	Dieldrin	4.8E-09	1.8E-08				
41	Endrin	1.0E-09	4.2E-09				
42	Gamma-BHC (Lin	2.8E-10	1.1E-09				
43	Heptachlor	1.3E-10	5.2E-10				
44	Heptachlor epo	3.3E-10	1.3E-09				
45	Methoxychlor	3.9E-09	1.6E-08				
46	PCB 1254	6.4E-09	2.5E-08				
47	PCB 1260	2.8E-08	1.1E-07				

SUBCHRONIC RISK SUMMARY

FUTURE
RENOV. WORKER 37

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
7E-05	NA	0E+00	0E+00	0E+00	0E+00
7E-04	NA				
2E-04	3E-02				
6E-07	NA				
NA	NA				
7E-04	5E+01				
NA	NA				
2E-04	NA				
4E-04	NA				
4E-05	NA				
1E-04	NA				
3E-06	9E-04				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
1E-07	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
1E-07	NA				
2E-07	NA				
0E+00	NA				
1E-07	NA				
0E+00	NA				
7E-07	NA				
0E+00	NA				
5E-07	NA				
1E-07	NA				
9E-05	NA				
9E-08	NA				
1E-07	NA				
4E-06	NA				
1E-04	NA				
9E-06	NA				
8E-06	NA				
NA	NA				
NA	NA				
3E-05	NA				
9E-05	NA				
3E-06	NA				
9E-08	NA				
3E-07	NA				
3E-05	NA				
8E-07	NA				
9E-05	NA				
4E-04	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00									
49 RDX	0.0E+00	0.0E+00									
				0E+00	NA						
				0E+00	NA						
PATHWAY SUM (HI)				3E-03	5E+01	0E+00	0E+00	0E+00	0E+00		
POPULATION TOTAL				5E+01							

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP3
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 37

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.9E-10	1.5E-09	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.1E-09	1.2E-08				
3	Barium	1.7E-07	6.7E-07				
4	Beryllium	4.3E-11	1.7E-10				
5	Cadmium (food	6.0E-09	2.4E-08				
6	Chromium (VI)	2.1E-07	8.3E-07				
7	Lead and Compo	3.1E-07	1.2E-06				
8	Mercury, Inorg	6.9E-10	2.8E-09				
9	Nickel	1.2E-07	4.7E-07				
10	Silver	2.9E-09	1.2E-08				
11	Vanadium	1.1E-08	4.3E-08				
12	Cyanide (free)	9.7E-10	3.9E-09				
13	Nitrate, nitra	0.0E+00	0.0E+00				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	7.6E-11	3.0E-10				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	0.0E+00	0.0E+00				
20	Benzo (g,h,i)	0.0E+00	0.0E+00				
21	Benzo (k) fluo	6.4E-11	2.6E-10				
22	Chrysene	1.0E-10	4.0E-10				
23	Dibenz (a,h) a	0.0E+00	0.0E+00				
24	Fluoranthene	7.3E-10	2.9E-09				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	3.8E-10	1.5E-09				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	2.3E-09	9.4E-09				
29	Pyrene	4.4E-10	1.8E-09				
30	Bis (2-ethylhe	2.7E-08	1.1E-07				
31	Butylbenzyl ph	2.6E-09	1.0E-08				
32	Di-n-butyl pht	2.0E-09	7.8E-09				
33	Di-n-octyl pht	1.3E-09	5.1E-09				
34	Aldrin	5.0E-11	2.0E-10				
35	Alpha-Endosulf	2.5E-11	1.0E-10				
36	Beta-Endosulfa	2.4E-11	9.8E-11				
37	DDD, 4,4'-	6.5E-11	2.6E-10				
38	DDE, 4,4'-	8.4E-11	3.4E-10				
39	DDT, 4,4'-	2.4E-10	9.4E-10				
40	Dieldrin	6.4E-11	2.6E-10				
41	Endrin	1.5E-11	6.0E-11				
42	Gamma-BHC (Lin	4.0E-12	1.6E-11				
43	Heptachlor	1.9E-12	7.4E-12				
44	Heptachlor epo	4.8E-12	1.9E-11				
45	Methoxychlor	5.6E-11	2.3E-10				
46	PCB 1254	9.1E-11	3.6E-10				
47	PCB 1260	4.0E-10	1.6E-09				

LIFETIME RISK SUMMARY

FUTURE
RENOV. WORKER 37

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 37 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 37 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
5E-09	2E-07				
NA	NA				
2E-10	1E-09				
NA	1E-07				
NA	4E-05				
NA	NA				
NA	NA				
NA	4E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
6E-10	NA				
0E+00	NA				
0E+00	NA				
NA	NA				
5E-10	NA				
7E-10	NA				
0E+00	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
4E-10	NA				
NA	NA				
NA	NA				
NA	NA				
9E-10	3E-09				
NA	NA				
NA	NA				
2E-11	NA				
3E-11	NA				
8E-11	3E-10				
1E-09	4E-09				
NA	NA				
5E-12	NA				
8E-12	3E-11				
4E-11	2E-10				
NA	NA				
7E-10	NA				
3E-09	NA				

48 Dinitrotoluene	0.0E+00	0.0E+00			0E+00	NA					
49 RDX	0.0E+00	0.0E+00			0E+00	NA					
			TOTAL PATHWAY CANCER RISK	1E-08	4E-05	0E+00	0E+00	0E+00	0E+00		
			POPULATION TOTAL EXCESS RISK	4E-05							

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 313

SUBCHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
1	Antimony	3.0E-05	8.8E-08	9.0E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.4E-06	7.1E-09	7.3E-08			
3	Barium	2.6E-04	7.5E-07	7.7E-06			
4	Beryllium	0.0E+00	0.0E+00	0.0E+00			
5	Cadmium (feed	1.8E-05	5.3E-07	5.4E-07			
6	Chromium (VI)	1.8E-04	5.2E-07	5.4E-06			
7	Lead and Compo	2.8E-03	5.0E-05	8.5E-05			
8	Mercury, inorg	2.0E-06	5.9E-09	6.1E-08			
9	Nickel	7.3E-04	NA	2.2E-05			
10	Silver	9.4E-06	2.7E-07	2.8E-07			
11	Vanadium	1.7E-05	4.9E-08	5.0E-07			
12	Cyanide (free)	0.0E+00	0.0E+00	0.0E+00			
13	Nitrate, nitra	2.1E-04	6.1E-07	6.2E-06			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	3.8E-07	NA	1.1E-08			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	3.6E-06	NA	1.1E-07			
20	Benzo (g,h,i)	2.0E-06	NA	5.9E-08			
21	Benzo (k) fluo	1.1E-07	NA	3.4E-09			
22	Chrysene	3.4E-07	NA	1.0E-08			
23	Dibenz (a,h) a	5.6E-07	NA	1.7E-08			
24	Fluoranthene	1.4E-06	NA	4.1E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.2E-07	NA	6.5E-09			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	6.0E-07	NA	1.8E-08			
29	Pyrene	6.9E-08	NA	2.1E-09			
30	Bis (2-ethylhe	1.2E-04	NA	3.7E-06			
31	Butylbenzyl ph	9.8E-05	NA	2.9E-06			
32	Di-n-butyl pht	2.4E-05	NA	7.2E-07			
33	Di-n-octyl pht	5.9E-06	NA	1.8E-07			
34	Aldrin	0.0E+00	0.0E+00	0.0E+00			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	0.0E+00	0.0E+00	0.0E+00			
37	DDD, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	0.0E+00	0.0E+00	0.0E+00			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	0.0E+00	0.0E+00	0.0E+00			
46	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	2.1E-05	3.7E-06	6.3E-07			

SUBCHRONIC RISK SUMMARY

FUTURE
RESIDENT 313

SUBCHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 (FROM WS4)	SCENARIO 5 (FROM WS5)	SCENARIO 6 (FROM WS6)
8E-02	2E-03	NA	0E+00	0E+00	0E+00
6E-03	2E-05	NA			
4E-03	1E-04	6E-03			
0E+00	0E+00	NA			
NA	NA	NA			
9E-03	5E-04	5E+00			
NA	NA	NA			
7E-03	1E-03	NA			
4E-02	NA	NA			
2E-03	1E-03	NA			
2E-03	7E-04	NA			
0E+00	0E+00	0E+00			
2E-03	6E-06	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
9E-06	NA	NA			
0E+00	NA	NA			
9E-05	NA	NA			
5E-05	NA	NA			
3E-06	NA	NA			
8E-06	NA	NA			
1E-05	NA	NA			
3E-06	NA	NA			
0E+00	NA	NA			
5E-06	NA	NA			
0E+00	NA	NA			
2E-06	NA	NA			
2E-07	NA	NA			
6E-03	NA	NA			
5E-05	NA	NA			
2E-05	NA	NA			
3E-04	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	0E+00	NA			
3E-01	6E-02	NA			

48 Dinitrotoluene	4.2E-08	1.2E-06	1.3E-06							
49 RDX	4.3E-05	1.3E-06	1.3E-06							
					2E-02	6E-04	NA			
					1E-02	4E-04	NA			
				PATHWAY SUM (HI)	5E-01	7E-02	9E+00	0E+00	0E+00	0E+00
				POPULATION TOTAL	6E+00					

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
RESIDENT 313

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.9E-05	7.6E-08	5.8E-07	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	1.5E-06	6.1E-09	4.6E-08			
3	Barium	1.6E-04	6.5E-07	4.8E-06			
4	Beryllium	0.0E+00	0.0E+00	0.0E+00			
5	Cadmium (food	1.1E-05	4.6E-07	3.4E-07			
6	Chromium (VI)	1.1E-04	4.6E-07	3.4E-06			
7	Lead and Compo	1.8E-03	4.3E-05	5.3E-05			
8	Mercury, inorg	1.3E-06	5.2E-09	3.8E-08			
9	Nickel	4.6E-04	NA	1.4E-05			
10	Silver	5.9E-06	2.4E-07	1.8E-07			
11	Vanadium	1.0E-05	4.2E-08	3.1E-07			
12	Cyanide (free)	0.0E+00	0.0E+00	0.0E+00			
13	Nitrate, nitra	1.3E-04	5.3E-07	3.9E-06			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	2.4E-07	NA	7.1E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	2.2E-06	NA	6.7E-08			
20	Benzo (g,h,i)	1.2E-06	NA	3.7E-08			
21	Benzo (k) fluo	7.0E-08	NA	2.1E-09			
22	Chrysene	2.1E-07	NA	6.3E-09			
23	Dibenz (a,h) a	3.5E-07	NA	1.1E-08			
24	Fluoranthene	8.6E-07	NA	2.6E-08			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	1.4E-07	NA	4.1E-09			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	3.8E-07	NA	1.1E-08			
29	Pyrene	4.3E-08	NA	1.3E-09			
30	Bis (2-ethylhe	7.8E-05	NA	2.3E-06			
31	Butylbenzyl ph	6.1E-05	NA	1.8E-06			
32	Di-n-butyl pht	1.5E-05	NA	4.5E-07			
33	Di-n-octyl pht	3.7E-06	NA	1.1E-07			
34	Aldrin	0.0E+00	0.0E+00	0.0E+00			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	0.0E+00	0.0E+00	0.0E+00			
37	DDD, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	0.0E+00	0.0E+00	0.0E+00			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	0.0E+00	0.0E+00	0.0E+00			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	1.3E-05	3.2E-06	3.9E-07			

CHRONIC RISK SUMMARY

FUTURE
RESIDENT 313

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
5E-02	2E-03	NA	0E+00	0E+00	0E+00
5E-03	2E-05	NA			
2E-03	9E-05	3E-02			
0E+00	0E+00	NA			
1E-02	2E-02	NA			
2E-02	2E-03	NA			
NA	NA	NA			
4E-03	9E-04	NA			
2E-02	NA	NA			
1E-03	1E-03	NA			
1E-03	6E-04	NA			
0E+00	0E+00	0E+00			
1E-03	5E-06	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
6E-06	NA	NA			
0E+00	NA	NA			
6E-05	NA	NA			
3E-05	NA	NA			
2E-06	NA	NA			
5E-06	NA	NA			
9E-06	NA	NA			
2E-05	NA	NA			
0E+00	NA	NA			
3E-06	NA	NA			
0E+00	NA	NA			
1E-05	NA	NA			
1E-06	NA	NA			
4E-03	NA	NA			
3E-04	NA	NA			
2E-04	NA	NA			
2E-04	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	0E+00	NA			
2E-01	5E-02	NA			

48 Dinitrotoluene	2.6E-05	1.1E-06	7.8E-07							
49 RDX	2.7E-05	1.1E-06	8.1E-07							
					1E-02	5E-04	NA			
					9E-03	4E-04	NA			
				PATHWAY SUM (HI)	3E-01	8E-02	3E-02	0E+00	0E+00	0E+00
				POPULATION TOTAL	4E-01					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP4
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RESIDENT 313

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.2E-06	3.0E-08	9.6E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.6E-07	2.4E-09	7.7E-09			
3	Barium	2.7E-05	2.6E-07	8.2E-07			
4	Beryllium	0.0E+00	0.0E+00	0.0E+00			
5	Cadmium (food	1.9E-06	1.8E-07	5.8E-08			
6	Chromium (VI)	1.9E-05	1.8E-07	5.7E-07			
7	Lead and Compo	3.0E-04	1.7E-05	9.1E-06			
8	Mercury, inorg	2.2E-07	2.0E-09	6.5E-09			
9	Nickel	7.7E-05	NA	2.3E-06			
10	Silver	1.0E-06	9.5E-08	3.0E-08			
11	Vanadium	1.8E-06	1.7E-08	5.3E-08			
12	Cyanide (free)	0.0E+00	0.0E+00	0.0E+00			
13	Nitrate, nitra	2.2E-05	2.1E-07	6.6E-07			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	4.0E-08	NA	1.2E-09			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	3.8E-07	NA	1.1E-08			
20	Benzo (g,h,i)	2.1E-07	NA	6.3E-09			
21	Benzo (k) fluo	1.2E-08	NA	3.6E-10			
22	Chrysene	3.6E-08	NA	1.1E-09			
23	Dibenz (a,h) a	6.0E-08	NA	1.8E-09			
24	Fluoranthene	1.5E-07	NA	4.4E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.3E-08	NA	7.0E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	6.4E-08	NA	1.9E-09			
29	Pyrene	7.3E-09	NA	2.2E-10			
30	Bis (2-ethylhe	1.3E-05	NA	4.0E-07			
31	Butylbenzyl ph	1.0E-05	NA	3.1E-07			
32	Di-n-butyl pht	2.6E-06	NA	7.7E-08			
33	Di-n-octyl pht	6.3E-07	NA	1.9E-08			
34	Aldrin	0.0E+00	0.0E+00	0.0E+00			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	0.0E+00	0.0E+00	0.0E+00			
37	DDD, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	0.0E+00	0.0E+00	0.0E+00			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	0.0E+00	0.0E+00	0.0E+00			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	2.2E-06	1.3E-06	6.7E-08			

LIFETIME RISK SUMMARY

FUTURE
RESIDENT 313

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
5E-07	4E-09	1E-07			
NA	NA	NA			
0E+00	0E+00	0E+00			
NA	NA	4E-07			
NA	NA	2E-05			
NA	NA	NA			
NA	NA	NA			
NA	NA	2E-06			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
3E-07	NA	NA			
0E+00	NA	NA			
3E-06	NA	NA			
NA	NA	NA			
9E-08	NA	NA			
3E-07	NA	NA			
4E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
2E-07	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	0E+00			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
0E+00	0E+00	0E+00			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
0E+00	0E+00	0E+00			
NA	NA	NA			
0E+00	0E+00	NA			
2E-05	1E-05	NA			

48 Dinitrotoluene	4.4E-06	4.2E-07	1.3E-07								
49 RDX	4.6E-06	4.4E-07	1.4E-07								
					3E-06	3E-07	NA				
					5E-07	5E-08	NA				
				TOTAL PATHWAY CANCER RISK	3E-05	1E-05	2E-05	0E+00	0E+00	0E+00	
				POPULATION TOTAL EXCESS RISK	6E-05						

RANGE NAME: CSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POPS
LAST UPDATED: 09/30/94

CHRONIC EXPOSURE SUMMARY

FUTURE
COMM. WORKER 313

CHRONIC DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.2E-07	3.1E-08	6.2E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.6E-08	2.5E-09	5.0E-09			
3	Barium	2.8E-06	2.6E-07	5.3E-07			
4	Beryllium	0.0E+00	0.0E+00	0.0E+00			
5	Cadmium (food	1.9E-07	1.8E-07	3.7E-08			
6	Chromium (VI)	1.9E-06	1.8E-07	3.7E-07			
7	Lead and Compo	3.0E-05	1.7E-05	5.8E-06			
8	Mercury, inorg	2.2E-08	2.1E-09	4.2E-09			
9	Nickel	7.8E-06	NA	1.5E-06			
10	Silver	1.0E-07	9.5E-08	1.9E-08			
11	Vanadium	1.8E-07	1.7E-08	3.4E-08			
12	Cyanide (free)	0.0E+00	0.0E+00	0.0E+00			
13	Nitrate, nitra	2.2E-06	2.1E-07	4.3E-07			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	4.1E-09	NA	7.8E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) fluo	3.8E-08	NA	7.3E-09			
20	Benzo (g,h,i)	2.1E-08	NA	4.1E-09			
21	Benzo (k) fluo	1.2E-09	NA	2.3E-10			
22	Chrysene	3.6E-09	NA	6.9E-10			
23	Dibenz (a,h) a	6.0E-09	NA	1.2E-09			
24	Fluoranthene	1.5E-08	NA	2.8E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	2.3E-09	NA	4.5E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	6.5E-09	NA	1.2E-09			
29	Pyrene	7.4E-10	NA	1.4E-10			
30	Bis (2-ethylhe	1.3E-06	NA	2.6E-07			
31	Butylbenzyl ph	1.0E-06	NA	2.0E-07			
32	Di-n-butyl pht	2.6E-07	NA	5.0E-08			
33	Di-n-octyl pht	6.4E-08	NA	1.2E-08			
34	Aldrin	0.0E+00	0.0E+00	0.0E+00			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	0.0E+00	0.0E+00	0.0E+00			
37	DDD, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	0.0E+00	0.0E+00	0.0E+00			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	0.0E+00	0.0E+00	0.0E+00			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	2.2E-07	1.3E-06	4.3E-06			

CHRONIC RISK SUMMARY

FUTURE
COMM. WORKER 313

CHRONIC HAZARD QUOTIENT

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
8E-04	8E-04	NA	0E+00	0E+00	0E+00
9E-05	8E-06	NA			
4E-05	4E-05	4E-03			
0E+00	0E+00	NA			
2E-04	7E-03	NA			
4E-04	7E-04	NA			
NA	NA	NA			
7E-05	3E-04	NA			
4E-04	NA	NA			
2E-05	4E-04	NA			
3E-05	2E-04	NA			
0E+00	0E+00	0E+00			
2E-05	2E-06	NA			
0E+00	NA	NA			
0E+00	NA	NA			
0E+00	NA	NA			
1E-07	NA	NA			
0E+00	NA	NA			
1E-06	NA	NA			
5E-07	NA	NA			
3E-08	NA	NA			
9E-08	NA	NA			
2E-07	NA	NA			
4E-07	NA	NA			
0E+00	NA	NA			
6E-08	NA	NA			
0E+00	NA	NA			
2E-07	NA	NA			
2E-08	NA	NA			
7E-05	NA	NA			
5E-06	NA	NA			
3E-06	NA	NA			
3E-06	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	NA	NA			
0E+00	0E+00	NA			
3E-03	2E-02	NA			

48	Dinitrotoluene	4.5E-07	4.2E-07	8.6E-06						
49	RDX	4.6E-07	4.4E-07	8.9E-06						
						2E-04	2E-04	NA		
						2E-04	1E-04	NA		
					PATHWAY SUM (HI)	6E-03	3E-02	4E-03	0E+00	0E+00	0E+00
					POPULATION TOTAL	4E-02					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP5
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
COMM. WORKER 313

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	1.2E-07	1.1E-08	2.2E-08	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	9.3E-09	8.8E-10	1.8E-09			
3	Barium	9.9E-07	9.3E-08	1.9E-07			
4	Beryllium	0.0E+00	0.0E+00	0.0E+00			
5	Cadmium (food	6.9E-08	6.6E-08	1.3E-08			
6	Chromium (VI)	6.9E-07	6.5E-08	1.3E-07			
7	Lead and Compo	1.1E-05	6.2E-06	2.1E-06			
8	Mercury, inorg	7.8E-09	7.3E-10	1.5E-09			
9	Nickel	2.8E-06	NA	5.3E-07			
10	Silver	3.6E-08	3.4E-08	6.9E-09			
11	Vanadium	6.4E-08	6.0E-09	1.2E-08			
12	Cyanide (free)	0.0E+00	0.0E+00	0.0E+00			
13	Nitrate, nitra	7.9E-07	7.5E-08	1.5E-07			
14	Acenaphthene	0.0E+00	NA	0.0E+00			
15	Acenaphthylene	0.0E+00	NA	0.0E+00			
16	Anthracene	0.0E+00	NA	0.0E+00			
17	Benzo (a) anth	1.5E-09	NA	2.8E-10			
18	Benzo (a) pyre	0.0E+00	NA	0.0E+00			
19	Benzo (b) flue	1.4E-08	NA	2.6E-09			
20	Benzo (g,h,i)	7.5E-09	NA	1.4E-09			
21	Benzo (k) flue	4.3E-10	NA	8.2E-11			
22	Chrysene	1.3E-09	NA	2.5E-10			
23	Dibenz (a,h) a	2.1E-09	NA	4.1E-10			
24	Fluoranthene	5.2E-09	NA	1.0E-09			
25	Fluorene	0.0E+00	NA	0.0E+00			
26	Methylnaphthal	8.3E-10	NA	1.6E-10			
27	Naphthalene	0.0E+00	NA	0.0E+00			
28	Phenanthrene	2.3E-09	NA	4.4E-10			
29	Pyrene	2.6E-10	NA	5.1E-11			
30	Bis (2-ethylhe	4.8E-07	NA	9.2E-08			
31	Butylbenzyl ph	3.7E-07	NA	7.2E-08			
32	Di-n-butyl pht	9.2E-08	NA	1.8E-08			
33	Di-n-octyl pht	2.3E-08	NA	4.4E-09			
34	Aldrin	0.0E+00	0.0E+00	0.0E+00			
35	Alpha-Endosulf	0.0E+00	0.0E+00	0.0E+00			
36	Beta-Endosulfa	0.0E+00	0.0E+00	0.0E+00			
37	DDD, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
38	DDE, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
39	DDT, 4,4'-	0.0E+00	0.0E+00	0.0E+00			
40	Dieldrin	0.0E+00	0.0E+00	0.0E+00			
41	Endrin	0.0E+00	0.0E+00	0.0E+00			
42	Gamma-BHC (Lin	0.0E+00	0.0E+00	0.0E+00			
43	Heptachlor	0.0E+00	0.0E+00	0.0E+00			
44	Heptachlor epo	0.0E+00	0.0E+00	0.0E+00			
45	Methoxychlor	0.0E+00	NA	0.0E+00			
46	PCB 1254	0.0E+00	0.0E+00	0.0E+00			
47	PCB 1260	8.0E-08	4.5E-07	1.5E-08			

LIFETIME RISK SUMMARY

FUTURE
COMM. WORKER 313

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INTERIOR RE DERMAL (FROM WS2)	SCENARIO 3 BLDG 313 INDOOR AIR INHALATION (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	NA	0E+00	0E+00	0E+00
2E-08	2E-09	3E-08			
NA	NA	NA			
0E+00	0E+00	0E+00			
NA	NA	8E-08			
NA	NA	6E-06			
NA	NA	NA			
NA	NA	NA			
NA	NA	4E-07			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
1E-08	NA	NA			
0E+00	NA	NA			
1E-07	NA	NA			
NA	NA	NA			
3E-09	NA	NA			
9E-09	NA	NA			
2E-08	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
7E-09	NA	NA			
NA	NA	NA			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	0E+00			
NA	NA	NA			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
0E+00	0E+00	0E+00			
NA	NA	NA			
0E+00	0E+00	NA			
0E+00	0E+00	0E+00			
0E+00	0E+00	0E+00			
NA	NA	NA			
0E+00	0E+00	NA			
6E-07	4E-06	NA			

48 Dinitrotoluene	1.6E-07	1.6E-07	3.1E-08							
49 RDX	1.7E-07	1.6E-07	3.2E-08							
				1E-07	1E-07	NA				
				2E-08	2E-08	NA				
TOTAL PATHWAY CANCER RISK				9E-07	4E-06	7E-06	0E+00	0E+00	0E+00	
POPULATION TOTAL EXCESS RISK				1E-05						

RANGE NAME: SSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP6
LAST UPDATED: 09/30/94

SUBCHRONIC EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 313

		SUBCHRONIC DAILY INTAKE (mg/kg/day)					
	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	3.2E-07	1.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	2.6E-08	1.0E-07				
3	Barium	2.8E-06	1.1E-05				
4	Beryllium	0.0E+00	0.0E+00				
5	Cadmium (food	1.9E-07	7.8E-07				
6	Chromium (VI)	1.9E-06	7.7E-06				
7	Lead and Compo	3.0E-05	1.2E-04				
8	Mercury, inorg	2.2E-08	8.7E-08				
9	Nickel	7.8E-06	3.1E-05				
10	Silver	1.0E-07	4.0E-07				
11	Vanadium	1.8E-07	7.1E-07				
12	Cyanide (free)	0.0E+00	0.0E+00				
13	Nitrate, nitra	2.2E-06	8.9E-06				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	4.1E-09	1.6E-08				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	3.8E-08	1.5E-07				
20	Benzo (g,h,i)	2.1E-08	8.5E-08				
21	Benzo (k) fluo	1.2E-09	4.8E-09				
22	Chrysene	3.6E-09	1.4E-08				
23	Dibenz (a,h) a	6.0E-09	2.4E-08				
24	Fluoranthene	1.5E-08	5.9E-08				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	2.3E-09	9.3E-09				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	6.5E-09	2.6E-08				
29	Pyrene	7.4E-10	3.0E-09				
30	Bis (2-ethylhe	1.3E-06	5.3E-06				
31	Butylbenzyl ph	1.0E-06	4.2E-06				
32	Di-n-butyl pht	2.6E-07	1.0E-06				
33	Di-n-octyl pht	6.4E-08	2.5E-07				
34	Aldrin	0.0E+00	0.0E+00				
35	Alpha-Endosulf	0.0E+00	0.0E+00				
36	Beta-Endosulfa	0.0E+00	0.0E+00				
37	DDD, 4,4'-	0.0E+00	0.0E+00				
38	DDE, 4,4'-	0.0E+00	0.0E+00				
39	DDT, 4,4'-	0.0E+00	0.0E+00				
40	Dieldrin	0.0E+00	0.0E+00				
41	Endrin	0.0E+00	0.0E+00				
42	Gamma-BHC (Lin	0.0E+00	0.0E+00				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	0.0E+00	0.0E+00				
45	Methoxychlor	0.0E+00	0.0E+00				
46	PCB 1254	0.0E+00	0.0E+00				
47	PCB 1260	2.2E-07	9.0E-07				

SUBCHRONIC RISK SUMMARY

FUTURE
RENOV. WORKER 313

SUBCHRONIC HAZARD QUOTIENT					
SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
8E-04	NA	0E+00	0E+00	0E+00	0E+00
9E-05	NA				
4E-05	8E-03				
0E+00	NA				
NA	NA				
1E-04	7E+00				
NA	NA				
7E-05	NA				
4E-04	NA				
2E-05	NA				
3E-05	NA				
0E+00	0E+00				
2E-05	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
1E-07	NA				
0E+00	NA				
1E-06	NA				
5E-07	NA				
3E-08	NA				
9E-08	NA				
2E-07	NA				
4E-08	NA				
0E+00	NA				
6E-08	NA				
0E+00	NA				
2E-08	NA				
2E-09	NA				
7E-05	NA				
5E-07	NA				
3E-07	NA				
3E-06	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
NA	NA				
NA	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
0E+00	NA				
3E-03	NA				

48 Dinitrotoluene	4.5E-07	1.8E-06							
49 RDX	4.6E-07	1.9E-06							
				2E-04	NA				
				2E-04	NA				
PATHWAY SUM (HI)				5E-03	7E+00	0E+00	0E+00	0E+00	0E+00
POPULATION TOTAL				7E+00					

RANGE NAME: LSUM

SITE NAME: AMTL
OPERABLE UNIT: ZONE 3 BLDGS
FILE NAME: POP6
LAST UPDATED: 09/30/94

LIFETIME EXPOSURE SUMMARY

FUTURE
RENOV. WORKER 313

LIFETIME AVERAGE DAILY INTAKE (mg/kg/day)

	CHEMICAL NAME	SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
1	Antimony	4.6E-09	1.8E-08	0.0E+00	0.0E+00	0.0E+00	0.0E+00
2	Arsenic	3.7E-10	1.5E-09				
3	Barium	3.9E-08	1.6E-07				
4	Beryllium	0.0E+00	0.0E+00				
5	Cadmium (food	2.8E-09	1.1E-08				
6	Chromium (VI)	2.8E-08	1.1E-07				
7	Lead and Compo	4.3E-07	1.7E-06				
8	Mercury, inorg	3.1E-10	1.2E-09				
9	Nickel	1.1E-07	4.5E-07				
10	Silver	1.4E-09	5.8E-09				
11	Vanadium	2.6E-09	1.0E-08				
12	Cyanide (free)	0.0E+00	0.0E+00				
13	Nitrate, nitre	3.2E-08	1.3E-07				
14	Acenaphthene	0.0E+00	0.0E+00				
15	Acenaphthylene	0.0E+00	0.0E+00				
16	Anthracene	0.0E+00	0.0E+00				
17	Benzo (a) anth	5.8E-11	2.3E-10				
18	Benzo (a) pyre	0.0E+00	0.0E+00				
19	Benzo (b) fluo	5.4E-10	2.2E-09				
20	Benzo (g,h,i)	3.0E-10	1.2E-09				
21	Benzo (k) fluo	1.7E-11	6.9E-11				
22	Chrysene	5.1E-11	2.1E-10				
23	Dibenz (a,h) a	8.6E-11	3.4E-10				
24	Fluoranthene	2.1E-10	8.4E-10				
25	Fluorene	0.0E+00	0.0E+00				
26	Methylnaphthal	3.3E-11	1.3E-10				
27	Naphthalene	0.0E+00	0.0E+00				
28	Phenanthrene	9.2E-11	3.7E-10				
29	Pyrene	1.1E-11	4.2E-11				
30	Bis (2-ethylhe	1.9E-08	7.6E-08				
31	Butylbenzyl ph	1.5E-08	6.0E-08				
32	Di-n-butyl pht	3.7E-09	1.5E-08				
33	Di-n-octyl pht	9.1E-10	3.6E-09				
34	Aldrin	0.0E+00	0.0E+00				
35	Alpha-Endosulf	0.0E+00	0.0E+00				
36	Beta-Endosulfa	0.0E+00	0.0E+00				
37	DDD, 4,4'-	0.0E+00	0.0E+00				
38	DDE, 4,4'-	0.0E+00	0.0E+00				
39	DDT, 4,4'-	0.0E+00	0.0E+00				
40	Dieldrin	0.0E+00	0.0E+00				
41	Endrin	0.0E+00	0.0E+00				
42	Gamma-BHC (Lin	0.0E+00	0.0E+00				
43	Heptachlor	0.0E+00	0.0E+00				
44	Heptachlor epo	0.0E+00	0.0E+00				
45	Methoxychlor	0.0E+00	0.0E+00				
46	PCB 1254	0.0E+00	0.0E+00				
47	PCB 1260	3.2E-09	1.3E-08				

LIFETIME RISK SUMMARY

FUTURE
RENOV. WORKER 313

LIFETIME EXCESS CANCER RISK

SCENARIO 1 BLDG 313 INTERIOR RE ORAL (FROM WS1)	SCENARIO 2 BLDG 313 INDOOR AIR INHALATION (FROM WS2)	SCENARIO 3 0 0 0 (FROM WS3)	SCENARIO 4 0 0 0 (FROM WS4)	SCENARIO 5 0 0 0 (FROM WS5)	SCENARIO 6 0 0 0 (FROM WS6)
NA	NA	0E+00	0E+00	0E+00	0E+00
6E-10	2E-08				
NA	NA				
0E+00	0E+00				
NA	7E-08				
NA	5E-06				
NA	NA				
NA	NA				
NA	4E-07				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
4E-10	NA				
0E+00	NA				
4E-09	NA				
NA	NA				
1E-10	NA				
4E-10	NA				
6E-10	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
NA	NA				
3E-10	NA				
NA	NA				
NA	NA				
NA	NA				
0E+00	0E+00				
NA	NA				
NA	NA				
0E+00	NA				
0E+00	NA				
0E+00	0E+00				
0E+00	0E+00				
NA	NA				
0E+00	NA				
0E+00	0E+00				
0E+00	0E+00				
NA	NA				
0E+00	NA				
2E-08	NA				

48 Dinitrotoluene	6.4E-09	2.6E-08							
49 RDX	6.6E-09	2.6E-08							
			4E-09	NA					
			7E-10	NA					
TOTAL PATHWAY CANCER RISK			3E-08	5E-06	0E+00	0E+00	0E+00	0E+00	
POPULATION TOTAL EXCESS RISK			5E-06						